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Does Seeing Matter? Exploring Pre-service Teachers' Use of Self-Video as a Tool for Self-Reflection in the Study of Their Own Practice

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Abstract

The use of video for teacher learning is a useful tool to support reflection and self-analysis. Video records have been successful in supporting teachers in learning to notice student thinking, a strong component in instructional expertise. The use of video provides permanent records of classroom lessons that can be viewed repeatedly (Sherin, 2001, 2007; van Es & Sherin, 2002, 2008.) It allows deep engagement and collaborative learning. Including the use of video in teacher preparation courses has successfully contributed to increasing pre-service teachers' attending and analyzing skills, necessary components of professional vision, (Santagata & Guarani, 2011; Stürmer, Könings, & Seidel, 2015).

This qualitative study investigated pre-service teachers' use of self-video analysis as a tool to learn from their own practice. I examined the following research questions:

1. How does examining one's own teaching performance on video affect self-perceived reflection?
2. When pre-service teachers engage in self-reflective video analysis:
    a. What teaching practices do they notice?
    b. How do they identify needed change to teaching practices?

This qualitative study included 12 pre-service teacher participants from the practicum courses of a teacher education program at one, public, Midwest University. Data collection included semi-structured interviews, focus group interview, and document collection about the use of video in self-reflection. Data analysis was inductive, following the Grounded Theory method (Corbin & Strauss, 1990). Findings

indicate that pre-service teachers find self-video records useful to self-reflection through increasing their awareness of the classroom surroundings, offering a different perspective, supporting evaluation of their teaching with a visual record, and offering a record of their teaching growth. Pre-service teachers reported noticing the self-image characteristics, student engagement, and teaching behaviors during self-video review and perceived a change of practice in classroom management, awareness of classroom surroundings, lesson organization and implementation, and self-image characteristics of voice level and movement. Further research of the effects of self-video on pre-service teachers' self-reflection should consider the use of a framework or facilitation guide to support productive reflection.

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I need to thank the 12 pre-service teachers who participated in this study. Thank you for taking the time out of your very busy semester. This study would not exist without your willingness to share your feelings about self-reflection with video. I am forever grateful to each of you.

I would be remiss without thanking my mentor and friend, Susan for encouraging me for years to pursue this degree. Her encouragement was steadfast throughout the years. I can only hope to make as large an impact in Teacher Education as she has.

Finally, I would like to dedicate my work to my father, who has been gone from my life more years than I had him. I was a first generation college student when I began my undergraduate degree in 1980. Although money was always tight, my parents supported my education as much as they were able. My father died in 1983, a year before I graduated from college. While I have pursued this degree for myself, I know he would be proud of me.

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Chapter 1: Introduction

Background/Historical Perspectives

As a faculty member in an early childhood teacher education program at a Midwest, public university located in the U.S., my course load includes two curriculum and practice courses focusing on infant/toddler education and preschool education. The course structure allows for both instruction in content pedagogy and the opportunity for pre-service teachers to teach in the campus Child Development Center, under the supervision of cooperating teachers and university faculty. I have used observation of teaching practices and students' self-reflection of their teaching, to assess effective performance in these courses since I began teaching in the early 1990's. These assessment practices stemmed from those with which I was familiar from my undergraduate teacher preparation. Since 2010, I have added a framework to guide students' self –reflection and the use of video recording of a teaching event to improve the quality of their self-reflection on their own practice and my assessments.

In 2014, I began a pilot study using video records of teaching with pre-service teachers. This pilot study involved a partnership with the College of Education (COE) and the Teaching Channel. The latter is a national, nonprofit, professional development web-based company that produces videos for practicing teachers to use in their professional development. The Teaching Channel is accessible worldwide through the internet and is designed to work across a variety of Internet browsers and operating systems, including Windows, MacOS, and iOS. Presently the website is produced only in English. Membership is free of charge and allows members access to a collection of

classroom teaching videos. The videos provide examples of quality teaching, as well as access to an interactive notes platform for engaging viewers in dialogue with other professionals. Teaching Channel Teams, as opposed to the central access, is the private, professional learning platform for schools, districts, and in this case, the university. This platform allows groups of teachers from subscribing teams to post videos of their practice. Group members from these teams can then view the videos and offer feedback. This partnership between the COE and Teaching Channel offered a dedicated webpage on the Teaching Channel website to allow students to share their videos with other pre-service students and faculty. With an app developed for tablets and smartphones, students are able to create video records of their own teaching (i.e., self-videos) to upload to the dedicated Teaching Channel platform with ease. These records, stored on the Teaching Channel platform on a private page, are available for review and analysis exclusively by Teaching Channel members associated with the public university.

The partnership with the Teaching Channel was purposeful and came at a time of transition in teacher licensure procedures. In 2015, the state Department of Elementary and Secondary Education (DESE) revised the assessment procedures used to grant teacher licensure. Performance assessment would be the "standard" for initial teacher education candidates beginning in the fall semester, 2016. DESE would now require all teacher certification candidates to submit video records and self-analysis of their teaching as evidence of their abilities to be successful teachers. In response, the teacher preparation program at the Midwestern University revised its final year of program study to prepare teacher candidates for these new licensure requirements.

A pilot study with the Teaching Channel led to the adoption of this technology platform to support the use of self-video analysis for all teacher certification candidates at this university. Self-video analysis became the hallmark practice of courses known as Practicum I and Practicum II in which students enroll during their last year of the teacher preparation program. These courses are field-experience based and provide pre-service teachers with the opportunity to practice their teaching in schools within the community. Pre-service teachers are expected to use self-video analysis as a tool to explore, envision, and implement teaching practices to prepare for licensure.

My research emanates from my interest in the efficacy of using video records to support self-reflection in the courses I teach, in the final year of the college's teacher education curriculum. The purpose of this study was to explore pre-service teachers' use of self-video analysis as a tool to learn from their own practice. Practice referred to in this dissertation refers to practice teaching completed in Practicum 1 and Practicum 2 courses. I examined the following research questions:

1. How does examining one's own teaching performance on video affect self-reflection?
2. When pre-service teachers engage in self-reflective video analysis:
    a. What teaching practices do they notice?
    b. How do they identify needed change to teaching practices?

Facilitating Teacher Reflection and Action

In the literal sense, "the word reflection originates from the Latin verb "reflectere" which means bend, turn ('flectere') backwards, or back ('re'). The term was

initially associated with the optic illusion of light against a smooth water surface or a mirror" (Bengtsson, 1995, p. 26). When considered in the human context, Bengtsson (1995) defines reflection to mean meditation and thinking. Furthermore, reflection involves a thorough consideration of an object, principle, or professional activity in order to gain a deeper understanding of it (Bengtsson, 1995). Other definitions of reflection include problem-solving (Biggie & Shermis, 1992); deliberation over an extended time about the purpose of action (Gore & Zeichner, 1991); and finding solutions to problems (Adler, 1999). Boyd and Fales (1983) offer this definition: "Reflective learning is the process of internally examining and exploring an issue of concern, triggered by an experience which creates and clarifies meaning in terms of self, and which results in a changed conceptual perspective" (p. 100). Similarly, Boud, Keogh, & Walker *(*1985) consider "reflection in the context of learning is a generic term for those intellectual and affective activities in which individuals engage to explore their experiences in order to lead to new understandings and appreciations" (p.19). Atkins & Murphy (1993) posit that reflection happens with an awareness of uncomfortable feelings and thoughts that are followed by a critical analysis. Schön (1983) described reflection as "continual interweaving of thinking and doing" (p. 281). Tripp and Rich (2012) offer a summary definition of reflection as, "…a self-critical, investigative process wherein teachers consider the effect of their pedagogical decision on their situated practice with the aim of improving those practices" (p. 678). A commonality among these definitions involves looking at the past to make informed decisions about future actions.

As a teacher educator, I consider reflection as a bridge between knowledge and practice. I agree with others in the teaching field who suggest that teacher learning

begins with reflection of their own practice and the best context for professional development is their own classroom experience (Ball & Cohen, 1999; Rodgers, 2002a). Schön (1983, 1987) emphasizes the importance of the link between reflection and practice. Loughran (2002) reminds us that experience alone does not lead to learning; reflection on experience is essential to developing professional knowledge. Rodgers (2002a) suggests that a structured process of reflection helps teachers see student learning, analyze it, and respond to it in practice. She also stated that reflection slows down the teaching and learning process and makes the complex processes of teaching evident. She contends that, "This ability to see the world, to be present to it and all its complexities, does not come naturally but must be learned" (p. 230). More clarification of her work is offered in Chapter 2.

With respect to an additional contributing thought regarding the importance of self-video analysis, Loughran (2002) includes his focus on the ultimate shaping of one's practice:

> Effective reflective practice is drawn from the ability to frame and reframe the practice setting, to develop and respond to this framing through action so that the practitioner's wisdom-in-action is enhanced and, as a particular outcome, articulation of professional knowledge is encouraged. What is learned as a result of reflection is, to me, at least equally valuable as reflection itself. It is through the development of knowledge and understanding of the practice setting and the ability to recognize and respond to such knowledge that the reflective practitioner becomes truly responsive to the needs, issues, and concerns that are so important in shaping practice. (p. 42)

In the nature of this study, the use of self-video provided opportunity for pre-service teachers to frame and reframe the teaching setting and their practices through multiple viewings provided with the video records as well as scaffolding from the clinical educators who guided and supervised their field-experiences.

Conceptual Framework

Reflection is the primary conceptual framework used in this study. Dewey (1933) introduces the notion of reflective thought in education and recognized reflection's disciplined way of thinking to make meaning. He defined reflective thought as "active, persistent, and careful consideration of any belief or supposed form of knowledge in light of the grounds that support it and the further conclusions to which it tends" (Dewey, 1933, p.9). He believed that the purpose of reflection was to inform future action. He offered reflection as a methodical way of thinking.

van Manen's (1977) proposed three-level hierarchy of reflection included technical, practical and critical reflection. Technical reflection entails efficiently meeting an agreed-upon set of non-negotiable goals or outcomes. Practical reflection allows for examination of both the goals and the means for reaching the goals. Critical reflection adds in the moral and ethical criteria (Davis, 2006; Hatton & Smith, 1995).

Schön's (1983) theory of reflection begins with his assertion of knowing-in-action and then suggests two levels in the reflective process: reflection-in-action and reflection-on-action. Knowing-in-action is the spontaneous act of taking tacit knowledge and making it explicit. A concrete example is riding a bike. Once you obtain the knowledge one naturally knows to lean to the left or right to maintain balance. It is the

knowledge of the profession one knows without having to think about it. Reflection-in-action depends upon the element of surprise that happens when the intuitive knowledge-in action produces unexpected results. Reflection–in-action happens in the moment and is spontaneous. It entails thinking about something and making decisions while doing it. Schön's (1983) theory asserts, "When someone reflects-in-action, he becomes a researcher in the practice of context. He is not dependent on the categories of established theory and technique, but constructs a new theory of the unique case" (p. 68). An example would be a teacher providing a non-planned break for movement during instruction after reading the cues of students In contrast, reflection–on-action happen after the moment. It involves thinking back, and making decisions about changes one would make to one's own practice. It often happens because reflection-in-action is missing, or in addition to reflection-in-action (Schön, 1983). In keeping with the previous example, a teacher might use reflection-on-action when considering the reasons for disengagement of students at the end of a day. In this study, the emphasis is pre-service teachers' reflection-on-action.

Hatton & Smith (1995) built upon Dewey, Schön, and van Manen's ideas to include technical rationality, reflection-on-action (which they distinguish as descriptive, dialogical, and critical reflection), and reflection-in-action in forms of reflective writing. Technical reflection involves decision-making about immediate behaviors drawn from a given theory base and interpreted in light of previous experience. Descriptive reflection entails description of events that occur without justification for the events. Dialogic reflection includes both a description of events and some attempt at justification, including a recognition of alternative viewpoints in the research. Dialogic reflection

requires stepping back from the event to hypothesize. Critical reflection recognizes the multiple historical and socio-political contexts that affect events, as well as an awareness of the effects upon others of one's actions. Hatton and Smith (1995) suggest that descriptive, dialogical, and critical reflection evolve in a developmental sequence. Furthermore, they conclude that critical reflection involves metacognition. Grimmett and Erickson (1988) present yet another view on reflection. They assert that reflection might be an attitude of thoughtfulness about action, such as in-class preparation, or discerning between several options for the best fit in a given situation.

Davis (2006) distinguished between unproductive and productive reflection among teachers. Unproductive reflection is descriptive in nature with analysis absent. Ideas are listed, but are not connected logically to theory or practice. Unproductive reflection lacks evidence for claims and alternatives to failed decisions. The focus of unproductive reflection is often on the teachers, rather than on the students' thinking. Moreover, Davis (2006) defines productive reflection as filled with integration and analysis. In productive reflection, many ways of seeing a teaching situation are presented and connections are made between teaching practice and student thinking. Teachers engaged in productive reflections provide reasons for misunderstanding, decisions, and generate alternatives for practice. Davis (2006) asserted that pre-service teachers' reflections are more often unproductive, which does not lead to change in practice. Bayat (2010) reported that video was a natural prompt for productive reflection in a study of using dialogue journals and video –recording in Early Childhood teacher education.

The Affordance of Video

Video has become a useful tool in developing the capacity of teacher reflection (Coffey, 2014; Fuller & Manning, 1973; McCullagh, 2012; Rich & Hannafin, 2009; Wang & Hartley, 2003). Video captures the authenticity and complexity of teaching often not achieved through written reflection or memory (Brophy, 2004; Goldman, 2007). Zhang, Lundeberg, Koehler and Eberhardt (2011) describe the use of video as a window into one's own practice. Sherin and Hahn (2004) assert that asynchronous video (video of a past event) is a powerful tool to stimulate teachers in reviewing their own practice. Goldman (2007) asserts that video produces an immersion effect, allowing deep engagement and resonance, forging connections to one's own practice. Snoeyink (2010) reported that pre-service teachers who engaged in self-video analysis perceived an improvement in their "withitness," a term used to describe awareness of the classroom surroundings. The examination of one's own teaching practices, in a deliberate manner with facilitator support, is an effective learning tool for pre-service teachers (van Es, Tunney, Goldsmith, & Seago, 2014, Hiebert & Morris, 2012). Research confirms that using video records as a tool for pre-service teachers to learn from their own teaching is successful in promoting deeper analysis and reflection (Santagata & Guarino, 2011; Seidel, Stürmer, Blomberg, Kobarg & Schwindt 2011; Star and Strickland, 2008; Stürmer, Seidel, & Schäfer, 2013; van Es & Sherin, 2002). Sherin (2004) explained, "Video allows one to enter the work of the classroom without having to be in the position of teaching in-the-moment" (p.13).

Video records can be viewed repeatedly; they capture the complexity of teaching (Sherin, Russ, Sherin, & Colestock, 2008). Roth (2007) attests that video provides a

record of all the happenings teachers do not notice at the time of teaching without reliance on memory. Furthermore, Roth (2007) posits that teachers can study video records away from the emotional involvement that is present during a lesson. This practice of complex analysis of self-teaching supports pre-service teachers in developing expert-like behaviors early in their teaching careers which ultimately impacts student learning (Thompson, Windschitl, & Braaten, 2011).

Professional vision. Noticing behaviors are an integral part of professional vision. Described by Blomberg, Stürmer, and Seidel (2011), they include the ability to observe and make professional sense of classroom events. They further clarify noticing as "knowledge-guided identification of classroom events" (p. 1132). Sherin (2007) attested that professional vision has two interrelated knowledge-based subcomponents: 1) noticing behaviors and 2) knowledge-based reasoning. van Es and Sherin (2009) expand upon knowledge-based reasoning to identify several levels of complexity that include identification and description of teaching; explanation that links classroom activity to professional knowledge; and prediction that uses professional knowledge to anticipate learning consequences. Blomberg et al. (2011) suggest that selective noticing is necessary in order for knowledge-based reasoning (use of professional knowledge) to happen. Simply put, teachers must be able to notice the important happenings out of all the simultaneous occurrences in a classroom.

Pre-service and novice teachers often lack strong noticing behaviors (Rosaen, Lundeberg, Cooper, Fritzen, & Terpstra, 2010; Star & Strickland, 2008). Tripp and Rich (2012) reported that video has the capacity to facilitate noticing aspects of their teaching that could not be recalled from memory. Developing significant noticing behaviors is a

key to teacher learning, and video is a tool found to assist in fostering the skills associated with professional vision (Blomberg et al., 2011; Kleinknecht & Schneider, 2013; Rosaen et al., 2010; Sherin & van Es, 2009; Santagata, 2009; Seidel, 2011).

Noticing skills. Using video in teacher preparation provides opportunities for pre-service teachers to develop noticing skills. Video has the potential of refining noticing skills, helping teachers move from a general awareness of classroom interactions to being able to discern the more significant and important interactions in the classroom (Marsh & Mitchell, 2014). Teachers' ability to notice important classroom interactions develops over time (Sherin, 2001, 2007; Sherin & van Es, 2005; van Es & Sherin, 2002). van Es and Sherin (2002) synthesized their research efforts to define the noticing behaviors important to teacher effectiveness. They propose that identifying what is important in a teaching situation, making connections between classroom interactions with the broader concepts and principles of teaching, and using what one knows about the specific teaching context to make decisions are the critical noticing behaviors.

Summary

In this study, I viewed reflection as an instrument for teacher preparation, and development. Viewing this research from a reflective lens allowed for a shared understanding between teacher educators and students that self-learning takes place when there are opportunities to integrate ideas about the multiple aspects of teaching (Davis, 2006). Reflective practitioners seek disciplined meaning-making to improve practice (Barnhart & van Es, 2015). I suggest that, as pre-service teachers' reflective skills are refined with self-video analysis, learning from one's own practice increases, which is necessary for gaining expertise (Berliner, 2001). The use of self-video analysis in teacher

preparation and professional development is an area of teacher education research that continues to grow. This study contributes to this body of research by exploring the ways in which pre-service teachers' use of self-video analysis affects their reflection of practice.

Delimitations

My research was focused on the pre-service teachers' use of self-video analysis as a tool to learn from their own practice at one public university located in a Midwestern university located in the U.S. I chose to limit the participants to pre-service teachers enrolled in any of the Practicum I or Practicum II courses offered during the fall semester of 2017 who volunteered to participate in the study. This sample may not be representative of the general population. I chose the theory of reflection to frame my study, whereas other theoretical frameworks might have provided different interpretation of the results.

The interpretive nature of this dissertation fits best in the genre of qualitative research. Qualitative research most often occurs in natural settings, and is grounded in the lived experiences of people (Creswell, 2003; Lincoln & Guba, 1985; Merriam, 2009). Merriam (2009) suggests that researchers using qualitative research "would be interested in (1) how people interpret their experiences, (2) how they construct their worlds, and (3) what meaning they attribute to their experiences" (p. 23). She further defined basic qualitative research as a type that does not seek an additional dimension. Percy, Kostere, & Kostere (2015) proposed that "generic qualitative inquiry investigates people's reports of their subjective opinions, attitudes, beliefs, or reflections on their experiences, of things in the outer world" (p. 78). The sample size in study is relatively small; however,

the qualitative methodology allowed for a very rich description and detailed account of the participants' experience using self-video analysis. Finally, there was the risk of researcher bias, due to my faculty status at the university and prior use of self-video analysis that has contributed to my views of the benefits and challenges of its use.

Acronyms Identified

I used the following definitions of terms and abbreviations throughout the paper.

COE-College of Education

ECE-Early Childhood Education

FCL-Fostering Communities of Learners

IMP-Inquiry into My Practice

IRB-Institutional Research Board

LAF-Lesson Analysis Framework

LlFT-Learning to learn From Teachers

LLMT-Learning to Learn From Mathematics Teaching

NI-Naturalistic Inquiry

OTL-Other Opportunities to Learn

PACT-TE-Performance Assessment of California Teachers-Teaching Event

SLO-Student Learning Outcomes

TPA-Teacher Performance Assessment

TRF-Teacher Rating Framework

US-United States of America

VAST- Video Analysis Support Tool

Structure of the Study

After the introduction in Chapter one, this dissertation continues with a literature review in Chapter two. This includes the elaboration of the conceptual frameworks used in this study and relevant research on using self-video analysis as a tool for teachers to learn from their own teaching. Chapter three offers a rationale for selection as well as describes the qualitative method employed in this study. I also elaborate upon my role as the researcher. I present the findings in Chapter four. I then offer discussion, conclusions, implications, limitations, and suggestions for further research in Chapter five. Lastly, I included appendices to aid in the clarification of the research presented in the previous chapters.

Chapter 2: Conceptual Framework and Literature Review

Overview

In this chapter, I situate the study within the conceptual framework of Reflection Theory. I then explore the literature on teacher learning and expertise; teacher quality and effectiveness; and the use of video in teacher preparation and professional development. In this review of literature, this study adds to the body of knowledge on beginning teacher learning and expertise through examining pre-service teachers' experiences with self-video analysis during their educator preparation.

Conceptual Framework

Reflection theory (Dewey, 1933; Schön, 1983) is the primary analytic lens used in this study. A relationship exists between reflection and teacher competence. As supported in Chapter 1, reflection can be an important tool to help pre-service teachers learn and develop expert-like teaching behaviors.

Bengtsson (1995) examined the epistemology of the term "reflection" to underscore the versatility of the core meaning. The word originates from the Latin verb reflectere, which means to bend or turn backward, and was used to describe light from a water or mirror. Bengtsson (1995) suggested that the same meaning applies to the human context, although not in the literal sense, but rather metaphorically. He asserted that: 1) a man is not passively reflected in a mirror but initiates reflection by looking in the mirror; 2) there is no need for a mirror as man turns himself inward to discover himself without the help of something external; and 3) that which is mirrored is not only physical, but rather the mental activities as well. Further, he differentiated reflection into two

categories: self-reflection and thinking. He emphasized that self-reflection leads to self-knowledge, which is necessary for teachers to take position on their own practice.

Early reflection theory. Dewey (1938) offered reflection as a methodical way of thinking. He described two sub-processes necessary for reflective thought: 1) a state of perplexity and doubt, and 2) an act of searching for evidence to support or nullify one's belief. Further, he clarified that reflective thought is a set of consecutive ideas that grow and support one another. Dewey (1938) emphasized the necessity of reflection being a continual process. It is a conscious and voluntary effort to establish belief. He believed that the importance of reflection was to inform future action. He emphasized the necessity of reflection being a continual process.

According to Dewey (1938) and Schön (1987), experience was supported as an important companion to reflective thought. Dewey (1938) suggested that experience is the basis of evidence needed to confirm or dispel the beliefs challenged in reflective thought, leading to education. He also believed that all education comes from experience, but not all experience is education, and warned that experience can be mis-educative, producing a lack of sensitivity and response which diminishes future learning. Mis-educative experience leads to routine action while educative experience leads to intelligent action. Simpson (2010) offers this example of mis-educative experience. A group of people who enjoy the outdoors sign up for an introductory backpacking course however, they were not given specific information about what type of personal gear to bring. Some of the group brought slumber-party type sleeping bags and were very cold, very cheap rain gear, and not enough food. Leadership did not judge the physical fitness levels of the group correctly. Thus, the experience of backpacking was mis-educative for

some of the group due to the lack of preparation and assessment. Some learned or mis-learned that they do not like backpacking.

Rodgers (2002b) interpreted Dewey's view of experience as something more than direct participation in events. Dewey (1938) believed that an experience is defined by the transaction of an individual and the environment. Furthermore, he viewed environment as, "whatever conditions interact with personal needs, desires, and capacities to create the experience which is had" (p. 44). He argued the importance of interaction and continuity in experiences, and suggests that educative experiences are agreeable and influence later experiences. Dewey (1938) puts forth:

> The two principles of continuity and interaction are not separate from each other. They intercept and unite. They are, so to speak, the longitudinal and lateral aspects of experience. Different situations succeed one another. But because of the principle of continuity, something from the earlier ones is carried over to the later ones. As an individual passes from one situation to another, his world, his environment, expands or contracts (p. 44).

Dewey (1938) deemed the purpose of interaction is to derive learning from experience through reflective thinking that leads to inquiry described as the scientific method. Rogers (2002b) offered an understanding of Dewey's principle of continuity as similar to Piaget's principle of schema building. For example, she suggested that we make sense of experience based upon experiences and prior knowledge. Dewey (1938) stated that, "what an individual has learned in the way of knowledge and skill in one situation becomes an instrument of understanding and dealing effectively with the situations which follow. The process goes on as long as life and learning continue" (p.

44). He identified that the ability to select the right kind of experiences is an underpinning of successful education. He perceived the teacher to be one who provides the materials and environment needed to create the curiosity and exploration necessary to increase knowledge. He operationalized his theory of reflection in his description of reflective activity that included five phases of reflective thought: suggestions, intellectualization, the hypothesis, reasoning, and testing the hypothesis in action. Although he did not see these phases as linear or fixed, he submitted that phases could be expanded or collapsed, and that all phases are necessary for reflective thinking to occur.

Later theorists expand and further clarify. After exploring the writings of Habermas and Freire, van Manen (1977) proposed three levels of reflectivity. "Technical rationality", the first level, assumes the technical application of educational knowledge and curriculum principles for attaining a given end. As individuals recognize the limitations of technical rationality, the second level of "practical action" evolves. Practical action involves concern with clarifying assumptions that underlie competing pedagogical goals. When one decides to determine the worth of experience, the third level, "critical reflection", is pursued. Critical reflection involves examining the worth of knowledge, as well as consideration of the moral and ethical implications of the educational processes.

Schön (1987), further building upon Dewey's theory of reflection, described reflection as "continual interweaving of thinking and doing" (p. 280). His theory of reflection emphasized the connection of theory and practice through reflection and action. He began with his assertion of knowing-in-action, and then suggested two levels in the reflective process: reflection-in-action and reflection-on-action. Knowing-in-action is

explained as the spontaneous act of taking tacit knowledge and making it explicit. It is the information of the profession that one knows without having to think about it. Reflection-in-action depends upon the element of surprise that happens when the intuitive knowledge-in-action produces unexpected results. Reflection–in-action happens in the moment, and is spontaneous. It involves thinking about something, and making decisions while doing it. Reflection-in-action involves reframing the situation, while drawing upon one's knowledge and experience. Schön (1983) stated that, "when someone reflects-in-action, he becomes a researcher in the practice of context. He is not dependent on the categories of established theory and technique, but constructs a new theory of the unique case" (p. 68). In contrast, reflection–on-action happens after the moment. It involves looking back, and thinking about what changes one would make to one's own practice. It often happens, because reflection-in-action is missing, or in addition to reflection-in-action. Schön's (1987) theory would argue that experience is necessary for the development of expertise, and is the basis for reflection-in-action and reflection-on-action.

Boyd and Fales (1983) defined reflection as "the *process* of creating and clarifying the meaning of experience (present or past) in terms of self (self in relation to self, and self in relation to the world). The outcome of the process is changed conceptual perspective" (p. 101). They suggested that the experience examined is of concern or importance to the self. They further defined a process of reflection to include:

(1) A sense of inner discomfort.

(2) Identification or clarification of the concern.

(3) Openness to new information from internal and external sources, with ability to observe and take in from a variety of perspectives.

(4) Resolution, expressed as “integration”, “coming together”, “acceptance of self-reality”, and “creative synthesis.”

(5) Establishing continuity of self with past, present, and future.

(6) Deciding whether to act on the outcome of the reflective process. (p. 106)

Their theories remind us that reflection is a natural, individual process; however, the processes they have identified are common processes.

John Smyth (1989), who based his work on the writings of Paulo Freire, identified four forms of action, characterized as sequential stages, in the reflection process. He stated reflection includes describing, informing, confronting, and reconstructing steps. In the describing step, teachers answer the question: “What did I do?” when they describe concrete teaching events. In the informing step, teachers consider the meaning of what they described in the context of broader theories and teaching principles that influence their action. The confrontation stage involves interrogation and questioning of teaching practice to consider the broader implications of the cultural, social and political context; it is this stage of reflection that assumptions, values and beliefs about teaching are exposed. The final stage, reconstructing, involves reflection about alternative teaching practices and conscious action that contributes to social injustice. Ajayi (2016) suggested that, at this level, individuals are able to take a position about the meaning of their teaching.

Zeichner and Liston (1987) identified four levels of reflective thought in their model. The first level is factual. At this level, the teacher focuses on facts associated with procedural steps. The second level is prudential, where evaluation of both the

teaching experience and outcomes is central. The third level is justificatory. At this level, rationale for actions is considered through self-questioning. The final level, critical, examines the underlying assumptions of action through a social justice lens.

Hatton and Smiths (1995) defined reflection as "…deliberate thinking about action with a view to improvement" (p. 35). Their research on reflection provided a model of three types of written reflection: descriptive reflection involves reasoning based upon personal judgement; dialogic reflection is described as a form of discourse with one's self; and critical reflection examines reasons for action in consideration of the broader historical, social and/or political contexts.

As noted in Chapter 1, Rodgers (2002a) developed a reflection cycle based upon Schön's (1983) reflection-on-action that can happen before or after a given teaching situation. She suggested that reflection-on-action provides practice for teachers in the moment of reflection-in-action. The stages of the reflection cycle are: 1) Presence in Experience: Learning to See, 2) Description: Learning to Describe and Differentiate, 3) Analysis of Experience: Learning to Think Critically and Create Theory, and 4) Experimentation: Learning to Take Intelligent Action. Rodgers (2002a) attests that the power of the reflective cycle is in the ability to slow down thinking to foster better attention to details, which allows teachers to focus on student thinking, rather than on their own teaching. The reflective cycle encourages student feedback as part of the process, so teachers can become aware of student thinking and student learning accomplishments, as well as learning challenges.

Teacher Learning and Expertise

What teachers need to know, and how knowledge is acquired, present important explorations into understanding teacher learning (Shulman, 1987). The following section reviews knowledge acquisition, expert and novice teacher characteristics, and teacher learning as a foundation to understand the role that video analysis plays in teacher learning and professional development.

Knowledge acquisition. Understanding what is meant by "teaching" is important to understanding how knowledge is acquired. Fenstermacher and Richardson (2005) clarified that teaching can be defined in two ways, as a task, or as achievement. Fenstermacher (1986) defined a task notion of teaching, one where persons possess some content, which they intend to impart to other individuals who lack the content. These individuals engage in a relationship for the purpose of acquired knowledge. However, this task notion of teaching does not assume that learning occurs because of what the teacher does (Fenstermacher, 1986). The achievement task of teaching considers learning of the content the teacher is presenting as the indicator for teaching. Fenstermacher & Richardson (2005) suggested adding the notion that some acceptable level of learning the content imparted by the teacher occurs to the definition of teaching.

Further, Fenstermacher & Richardson (2005) clarified the notion of quality teaching as more than the achievement task of simple learning.

> Quality teaching, it seems, pertains to what is taught and how it is taught. The content must be appropriate, proper, and aimed at some worthy purpose. The methods employed have to be morally defensible and grounded in shared

> conceptions of reasonableness. To sharpen the contrast with *successful teaching* that accords with high standards for subject matter content and methods of practice *good teaching*. Successful teaching is teaching that yields the intended learning. Good teaching is teaching that comports with morally defensible and rationally sound principles of instructional practice. (p. 6)

Teaching students how to score high on a multiple-choice test by understanding the probability of the likelihood of answers is successful teaching; however, good teaching would be teaching students to understand the concepts that are presented on the multiple-choice test.

Likewise, Shulman (1986) considered the complexity of teacher understanding in his framework for the acquisition of content knowledge. He identified three core categories of content knowledge teachers need to promote student learning: a) subject matter content knowledge, b) pedagogical content knowledge, and c) curricular knowledge. Subject matter content knowledge is considered the accumulation of facts and concepts in the subject domain. He emphasized that teachers need to be able to explain why a knowledge proposition is worthy of knowing within the discipline. Secondly, he described pedagogical content knowledge as the knowledge for teaching, and emphasized that teachers need to know the most useful representations of ideas, analogies, illustrations, and examples in order to make the information comprehensible, as well as what makes learning of the content knowledge easy or difficult for students. This included preconceptions and misconceptions of the content. Lastly, he defined curricular knowledge as the understanding of curriculum, and associated materials and tools that present the subject matter content. Teachers should be aware of the full range

of programs and materials available for teaching particular subjects, the alternative curricula available to teach the content, and the other subjects students are taking at the same time (considered the "lateral curriculum). Knowledge of the lateral curriculum allows teachers to relate the teachings of one subject to other discussions. Similarly, teachers should have vertical knowledge of the curriculum to understand the scope and sequence of the subject matter content.

Shulman (1987) refined his framework to include three other categories of teacher knowledge: a) knowledge of learners and their characteristics, b) knowledge of educational contexts, and c) knowledge of educational ends, purposes, and values. He supported four sources for the teaching knowledge base.

> These include (1) scholarship in content discipline, (2) the materials and settings of the institutionalized educational process, (3) research on schooling, organizations, human learning, teaching, and development, and other social and cultural phenomena that affect what teachers can do, and (4) the wisdom of the practice itself. (p. 8)

The influence of professional organizations and our improved profession. Professional education organizations that prepare and nurture teacher learning also provide guidelines for teacher knowledge. In 1989, the American Association of Colleges for Teacher Education (AACTE) released a report titled, "*The Knowledge Base for Beginning Teachers"*. The report identified five areas important to teacher training. These were: knowledge about learners and learning; knowledge about curriculum and teaching; knowledge about social foundations of education; knowledge about subject matter; and knowledge about liberal arts (Reynolds, 1989). In 2005, the National

Academy of Education revised this report to develop a framework of knowledge, skills, and dispositions necessary in preparing teachers. The framework focused on: 1) knowledge of learners and their development in social context, 2) conceptions of curriculum content and goals, and 3) an understanding of teaching in the context of content and learners (Darling-Hammond & Bransford, 2005).

Researchers began to focus on the many types of knowledge other than subject-specific content knowledge that teachers need to be successful, such as professional vision. The concept of professional vision was introduced by Goodwin (1994), defined as the "socially organized ways of seeing and understanding events that are answerable to the distinctive interests of a particular social group" (p. 606). Sherin (2001) adapted Goodwin's concept for the teaching profession to be concerned with the phenomena of classroom interactions. Teachers' professional vision includes the ability to notice and interpret significant happenings in a classroom (Sherin, 2001, 2007). It is the ability to make sense of what is happening in the classroom from a professional perspective. It influences teachers' perceptions, and helps provide effective learning experiences (Blomberg et al., 2011; van Es & Sherin, 2002).

Teachers must learn to use their accumulated knowledge to make choices and take action when teaching (Shulman 1987). Knowledge development, including both content and professional knowledge, provides a foundation for teacher expertise, and is examined in the next section.

Contrasting expert with novice teachers. Research on teacher expertise shows that expert teachers are able to identify important characteristics of student learning, reason about this learning, and make informed decisions about instruction (Berliner,

2001). In their study of teachers, Carter, Cushing, Sabers, Stein, and Berliner (1988) examined the differences in perceiving and processing visual classroom information among groups of novice (pre-service or first year), expert (nominated by superintendent or principal), and postulant (aspiring, no pedagogical training) teachers. Their findings suggested the presence of differences in the receiving, processing, and monitoring of visual, classroom information between expert and novice teachers. Experts had the ability to use stored knowledge about children and events to understand and explain classroom phenomena. Experts exhibited awareness of the many variables that affect classroom climate, and were more confident about instruction and classroom management. Experts showed a sense of typicality, described by Carter et al. (1988) as the ability to sense the normal happenings of a classroom, and ignore a great deal of these moments. Moreover, novice teachers were hesitant in describing interactions and classroom management, and lacked the depth of experience to provide multiple and accurate explanations. Postulant teachers were confident in content knowledge, as well as being concerned about instruction and commitment to student learning. In addition, aspiring teachers also expressed an overwhelming feeling of a lack of understanding of the system.

In further study of expert teachers, Berliner (2001) recognized the importance of understanding the cognitive characteristics that define expertise in the context of culture as each culture values different characteristics. Berliner (2001) set forth the following propositions about expert teachers grounded in research supporting that:

- Expert teachers excel mainly in their own domain and in particular contexts;

- Expert teachers develop automaticity for the repetitive operations that are needed to accomplish their goals;
- Expert teachers are more opportunistic and flexible in their teaching than are novices;
- Expert teachers are more sensitive to the task demands and social situations surrounding them when solving problems;
- Expert teachers represent problems in quantitatively different ways than do novices;
- Expert teachers have faster and more accurate pattern recognition capabilities;
- Expert teachers perceive more meaningful patterns in the domain in which they are experienced; and
- Expert teachers may begin to problem solve problems slower, but they bring richer and more personal sources of information to bear on the problems that they are trying to solve. (p. 472)

Other research on experienced and novice teachers indicates that experienced, effective teachers are more organized in planning, have better organized classroom environments and routines, have plans for handling problems, and are able to understand student learning styles, interests, needs, and prerequisite skills better than novice teachers (Borko & Livingston, 1989; Covino & Iwanicki, 1996; Cruickshank & Haefele, 2001). Sabers et al. (1991) found differences in noticing behaviors between advanced beginner teachers (pre-service or 1 year of experience), experts (more than five years of experience), and novice (only content knowledge) science teachers. The experts noticed

subtle differences in instructional strategies. Novice and advanced beginner teachers focused more on teacher action, while the experts focused more on the students' actions.

An examination of teacher expertise. The path to teacher expertise varies among teachers; experience does not ensure expertise in all instances. Expert-like characteristics can take from five to eight years to develop (Berliner, 2001; Darling-Hammond, 2000; Scherer, 2001). As stated in Chapter 1, Dewey (1933) and Schön (1987) emphasized the importance of reflection about practical experience for teacher learning. Berliner (2001) also recognized that some, but not all, individuals will exhibit more expertise as experience if gained and reflected on in learning to teach. Similarly, Dreyfus and Dreyfus (1986) described how teaching expertise develops in their heuristic model that specified behavior characteristics of the developmental stages individuals' experience. Berliner (1994) had adapted this model to include the stages of novice, advanced beginner, competent performer, proficient, and expert. He described the novice level as a stage at which a set of context- free rules must be given. The behavior of a novice teacher is somewhat inflexible, and conforms to the rules and procedures they are given. Next, the advanced beginner level is the stage where experience is gained, often in the second or third year of teaching. At this level, teachers build episodic knowledge, and begin to recognize the similarities across context, and strategic knowledge is developed at this stage, as a context to guide behavior. Berliner (1994) suggested that teachers are lacking personal agency at the novice and advanced beginner levels, failing to take responsibility for their actions. With continued experience, most, but not all, teachers will reach the competent performance stage. This stage is distinguished by two characteristics: making conscious choices about teaching practice; and while enacting

their practice, teachers determine what is and what is not important. Attending skills are refined during this stage, and competent teachers feel more personally in control. In addition, this stage is characterized by inflexibility.

Additionally, Berliner (1994) suggests the last two stages (proficient and expert, respectively) develop after the fifth year of teaching. He offers that a modest number of teachers reach the proficient level, the stage in which intuition becomes pronounced. Proficient teachers recognize patterns of similarity in events because of their experiences. They are able to use past experiences to solve problems yet still in a deliberative manner. The final level in Berliner's (1994) model is that of the expert. He states:

> Experts have both an intuitive grasp of the situation and seem to sense in non-analytic and non-deliberative ways the appropriate response to be made. They show fluid performance, as we all do when we no longer have to choose our words when speaking or think about where to place our feet when walking. We simple talk and walk in an apparently effortless manner. (p. 15-16)

Berliner (1994) refers to expert behavior as arational, as experts are not consciously choosing what to notice and attend. Similarly, Schön (1983) eludes to the behavior Berliner (1994) describes as expert behavior when describing knowledge-in-action as the ability to use tacit knowledge and practical knowledge gained from experience, to make decisions.

Glaser (1996) considers the notion of agency as he describes the development of expertise. He puts forth three interactive phases, titled externally supported, transitional, and self-regulatory. Individuals are externally supported by the interest and dedication of

other practitioners in the field. The transitional stage is characterized by the need for less scaffolding. Individuals at this stage require less support from others to be confident and successful in performance. Self-monitoring and self-regulation techniques are learned, which led to his final phase that involves one controlling his or her own learning environment, including the amount of feedback needed and the level of challenge of his or her own development.

Teaching experience provides improvement in teaching skills during the first three to five years of teaching, with minimal effects thereafter (Nye, Kostantopoulos, & Hedges, 2004; Rivkin et al., 2005). Borko, Koellner, Jacobs, and Seago (2011) contend that "one important component of teaching expertise is the ability of observe and interpret classroom events as a lesson unfolds, and to make instructional decisions based on those interpretations" (p. 185). Using video records and guided reflection supports pre-service and practicing teachers in developing this skill. Since the path to expertise varies for individuals, the opportunity for development should focus on nurturing these identified expert behaviors. Teacher learning from their own practice should be an integral part of teacher preparation and professional development of novice teachers, in order to increase student learning (Feiman-Nemser, 2001; Liston & Zeichner, 1987).

Preparing teachers to learn from teaching. Understanding how and what teachers learn is paramount to teacher education. Research provides guidelines of successful practices for professional development to influence teacher learning. According to Avalos (2001), teacher professional development is a complex process "about teacher learning, learning how to learn, and transforming their knowledge into practice for the benefit of student growth" (p. 10). Darling-Hammond and Richardson

(2009) argued that high quality professional development ought to be a coherent part of school culture, rather than a one-time workshop model. In their research findings, Garet, Porter, Desimone, Birman, and Yoon (2001) offered guidelines suggesting that sustained, intensive professional development, and focused on content, is more effective than short-lasting professional development.

In a review of successful professional development programs, Wilson and Berne (1999) found three key features of them. First, teacher learning should happen in a community of learners, as teachers strive to refine their teacher practices. Next, "teacher learning ought not to be bound and delivered but rather activated" (p. 194). Professional development that presents prepackaged pedagogy and curriculum is not effective. Finally, Wilson and Berne supported what Lord (1994) called "critical colleagueship," defined as a community of trust among colleagues who respect professional discourse, that includes, rather than excludes, critique. Professional discourse is sustained through self-reflection, collegial dialogue, and on-going critique. McLaughlin and Talbert (1993) shared a similar view and suggested effective professional learning happens in collaborative and collegial learning environments, which support the development of communities of practice that share the risk-taking of transforming teaching practice. Avalos (2001), Garet et al. (2001), and Darling-Hammond and Richardson (2009) suggested that professional development experiences engage teachers in active learning experiences that allow for practice and reflection. In the ideal model, diverse groups of teachers work together to examine self and others' practice and student learning, engaging in conversation and reflection with a focus on improvement of instructional practice.

Shulman and Shulman (2004), through their work on Fostering Communities of Learners (FCL), proposed a model for accomplished teacher development in considering teacher learning within communities. They explained that, "An accomplished teacher is a member of a professional community who is ready, willing, and able to teach and learn from his or her own teaching experiences" (p. 259). The elements of their model are: Ready, Willing, Able, Reflective, and Communal. Accomplished teachers have a vision of student learners and student understanding. They view teaching as an exchange of ideas between teacher and learner. Willing teachers are motivated to learn and change. Able teachers know a variety of teaching strategies, and enact these to promote student-learning success; understand disciplinary and pedagogical content; utilize curriculum; engage classroom management and organization techniques; create community learners; and understand learners from a developmental perspective. Reflective teachers evaluate, review, self-criticize, and learn from their experiences. Accomplished teachers are able to discuss their work with others within a community of teachers, as learners to becoming more conscious of their own teaching.

Putnam and Borko (2000) proposed that teachers need opportunities for professional development outside of their local teaching context. They suggested a combination of summer institutes and ongoing, yearlong support throughout the school year. They acknowledged that intensive summer professional development allows for sustained learning in a setting free from the worries that accompany daily teaching. The professional learning community brings together a diverse group of individuals, and provides a forum where "community members can draw upon and incorporate each

other's expertise to create rich conversations and new insights into teaching and learning" (p.8).

Teacher preparation should be the beginning of teacher professional development and learning. Feiman-Nemser (2001) offered that pre-service teacher preparation is a time to begin forming good habits for the necessary study of teaching, in conjunction with peers and colleagues. Knowledge that is socially constructed is part of learning to teach, as pre-service teachers learn to think, talk, and act like teachers (Putnam & Borko, 2000). Professional development (as described above) is most successful in a professional learning community where individuals examine and reflect upon their own and others' teaching practice. Video is a tool that assists in learning from teaching.

Using Video Tools in Teacher Education and Professional Development

There is adequate consensus among researchers that video is a useful pedagogical tool in teacher education and professional development, when imbedded within an instructional program (Brophy, 2004; Darling-Hammond, 2006; Goldman, 2007; Sherin & van Es, 2008; van Es & Sherin, 2002). Lemke (2007) noted that video allows teachers to experience teaching with much introspection. Video is an effective tool to help pre-service and in-service teachers learn to observe, reflect, and think critically about teaching strategies (Masats & Dooly, 2011). Feiman-Nemser (2001) asserted that equipping pre-service teachers with tools, such as video analysis, to study their own teaching is one of five essential components in teacher preparation, that include: analyzing beliefs and forming new visions; developing subject matter knowledge for teaching; developing understanding of learners and learning; developing a beginning repertoire; and developing tools to study teaching. Chung and van Es (2015) contended

that video of classroom instruction can help pre-service teachers learn to attend to and make sense of student learning.

Video is a record of practice, bringing the everyday experience of classroom instruction to the professional development setting (Sherin, 2001). Video provides a shared experience for participants, supporting collaborative exploration. Sherin (2004) explained, "Video allows one to enter the work of the classroom without having to be in the position of teaching in-the-moment" (p.13). Video records can be viewed repeatedly, and capture the complexity of teaching (Sherin, Russ, Sherin, & Colestock, 2008). Goldman et al. (2007) asserted that video produces an immersion effect, allowing deep engagement and resonance, forging connections to one's own practice. Video provides a record of all the happenings teachers do not notice at the time of teaching without reliance on memory.

Affordances of using video as a tool for teacher learning. Video is used in multiple ways in teacher education and professional development to foster teacher learning. Teachers can observe their own teaching, or teaching of others, to learn to attend and analyze classroom happenings (Seidel, Stürmer, Blomberg, Koberg & Schwindt (2011). Edited video selections of classroom observations are used to document examples of good teaching practices and typical classroom lessons. Video cases are used to bridge the gap between theory and practice. They are used to improve reasoning, stimulate discussion, and facilitate decision-making skills (Koc, Peker, & Osmanoglu, 2009). Likewise, Masats and Dooly (2011) suggested multiple uses of video, and categorize video use as the following: video-viewing as a method to focus the teacher's attention on a chosen topic for discussion; video modelling as a way to get pre-

service teachers to focus attention on a targeted skill; video coaching as the taping of oneself during instruction, that is then discussed within a collaborative learning group; and video making, the newest of the categories, includes inexpensive, user-friendly digital videos of the classroom taken by teachers and students.

Video has been successful in teaching noticing and attending skills, critical to professional vision (van Es & Sherin, 2002; Sherin & Hahn, 2004). Video supports in depth reflective skills in teachers (Rodgers, 2002a; Rosaen et al., 2008). More recently, video narratives, such as portfolios, are used as an assessment in teacher education (Bannink, 2009), and commonly used in teacher performance examinations required for teacher licensure. One example is the Educational Teacher Performance Assessment (edTPA), a subject-specific performance assessment used in many states in the U.S. The edTPA requires submission of a self-video, and analysis of one's own teaching in order to be considered for teacher licensure (Pearson, 2012).

Seidel et al. (2011) examined teachers' learning from analysis of their own classroom teaching and other teacher's classrooms. They focused their study on knowledge activation and professional vision of those experienced with video analysis, compared to those without video analysis experience. They examined knowledge activation through immersion, resonance, authenticity, and motivation characteristics, as well as professional vision through noticing behaviors and interpretation of classroom events. Results were significant in showing that video- experienced teachers had higher level of immersion ratings when viewing their own teaching.

Challenges in using video as a tool for learning. There are some challenges in using video to support teacher learning. Seago (2004) points out that video is a tool that

in and of itself; it does not produce learning. Rather, how video is used to promote specific learning goals allows for learning opportunities. Seago (2004) suggests that video offers the chance to consider issues related to one's own practice, as well as for viewing the practice of others, providing opportunity to examine teaching practices while emotionally distant. Interestingly, Seago (2004) cautions that some view video is too cluttered to promote teacher learning. He concludes that video is a real picture of many things to attend to in the classroom, and offers that creating effective learning opportunities using video requires support in learning to analyze differences in teaching practices as well as value alternative practices in respectful ways.

Star and Strickland (2008) attested to that the benefits of video analysis are based on the teachers' ability to be keen observers of classroom practice; teachers need support in identifying what to attend to when viewing video to unlock the full potential of the tool. In addition, Sherin (2004) acknowledged the complexity of using video in teaching and learning environments, and emphasized that context and content are influential in video interpretation. Brophy (2004) suggests careful planning and designing of video tasks is critical to using video as a tool for teacher learning. Procedures such as self-analysis, viewing of other peer interactions, and viewing within a group, influence video interpretation (Sherin, 2004).

Using video as a tool for self-reflection. Some research provides evidence of the promise of using video as a tool to support the development of reflection skills. Davis (2006) explored teacher reflection to determine characteristics of productive reflection that she described as the integration of ideas about multiple aspects of teaching, including learners and learning, subject matter knowledge, assessment, and instruction. Results

from her study found high variability in pre-service teachers' ability to integrate knowledge into reflection. Pre-service teachers emphasized learners and learning the most, however almost half emphasized all four aspects of teaching. Davis (2006) concluded that written reflection-on-action is a window into teacher learning. Asking pre-service teachers to engage in written reflection-on-action promotes pre-service teachers own learning, as well as providing teacher educators with an understanding of pre-service teachers' thinking.

Rosaen et al. (2008) examined the use of video record in pre-service teacher reflection about classroom discussions during the first year of internship, when compared with self-reflection from memory. Participants were asked to teach, videotape, and reflect upon one lesson from memory and one lesson using the video record. Results showed three main differences in the video-based versus the memory-based reflections. First, participants increased specific observations using the video record. Second, participants discussed more instructional elements of teaching using the video record and more behavior management elements when using memory for reflection. Third, participants focused more attention on the children, rather than themselves when using the video record in reflection. They attested that using video to support reflection slows down performance and supports teachers in their attending to and noticing of specific behaviors. They further acknowledged that technology allows specific teaching moments to be suspended and repeated for in-depth analysis.

Blomberg, Sherin, Renkl, Glogger and Seidel (2014) explored the potential of two instructional strategies, situated and cognitive, in using video to improve reflection. They conceptualized reflection skills by level of analysis, and identified three levels:

description, evaluation, and integration. Description involves noticing and identifying events without judgment. Evaluation involves reflection on events about student learning including judgments. Integration connects the observed events to professional knowledge, classifying according to learned teaching components. Further, Blomberg et al. (2014) developed two video-based university courses, each one embracing either the situated or the cognitive lens. Both courses shared the same video clips of good authentic teaching for instruction purposes, and shared the same core components of effective instruction: 1) clarifying objectives and requirements, 2) initiating and guiding student learning, and 3) developing a positive learning atmosphere. Additionally, the Blomberg et al. (2014) study results supported that the video courses using a cognitive approach, offering more direct guidance for reflection initially, produced more expert-like reflections. However, they cautioned that it was not sustained increase. Over time, those who were in the video course with a situated learning focus, which offered less direct guidance and social learning, were able to engage at a higher level of reflection more consistently.

Taking this to greater depths, Welsch and Devlin (2007) examined the differences in memory-based reflection and video-based reflection of individuals seeking special education teacher licensure. Students in both situations were asked to complete a six-item reflection profile based on the PATHWISE Classroom Observation System. Reflections were scored using an analytic/three-point rubric. They also examined participants' views about the benefits of using video with a Likert-type questionnaire. Results showed a slightly higher cumulative mean score for those under the video-based reflection protocol; however, an independent two-sample t-test of results between the two

groups (memory and video) was not significant. In considering participants' feelings about the use of video, 92% reported that their ability to reflect was enhanced after viewing the videotaped lesson.

Collectively, these studies emphasize the benefits of using video to support self-reflection of one's own teaching by helping individuals increase their noticing abilities, important to the development of professional vision (van Es & Sherin, 2002).

Professional vision. Professional vision is a strong component of teacher expertise (Berliner, 2001). Research on teacher expertise shows that expert teachers are able to identify important characteristics of student learning, reason about this learning, and make informed decisions about instruction (Berliner, 2001). Fostering the development of professional vision in pre-service and in-service teachers is a method to improve teacher expertise (Sherin, 2001; Sherin, 2002; Stürmer, Seidel, & Schäfer, (date?); van Es & Sherin, 2002; van Es & Sherin, 2008).

The study of professional vision presents challenges, though, as vision happens in the moment of instruction. The affordance to stop to discuss, and reflect upon teacher action in the moment of instruction, is absent. Video is a tool that mitigates this challenge by allowing teachers to view instruction retrospectively (Brophy, 2004; Goldman, 2007; Sherin, 2004). There is much research on the use of video to study the concept of professional vision, an important indicator of integrated knowledge structures (Goodwin, 2004) necessary for expertise. Professional vision describes the ability to use conceptual knowledge about teaching and learning to notice and interpret important features in the classroom with a focus on student learning (Sherin 2007; van Es & Sherin, 2002). Professional vision has been thought to include two interrelated knowledge-based

subcomponents: 1) noticing behaviors, and 2) knowledge base reasoning (van Es & Sherin, 2008).

Teachers' ability to notice important classroom interactions, the first component of professional vision, described by van Es and Sherin (2002) develops over time. van Es and Sherin (2002) proposed three key aspects to noticing behavior:

> (a) identifying what is important or noteworthy about a classroom situation;
>
> (b) making connections between the specifics of classroom interactions and the broader implications of teaching and learning they represent; and
>
> (c) using what one knows about the context to reason about the classroom interactions. (p. 573)

Measuring professional vision is important to understanding the impact on teacher learning. Several researchers have developed their own tools to assist in their research efforts. van Es and Sherin (2002) determined the effect of a tool they developed, the Video Analysis Support Tool (VAST), to support teachers in their ability to notice. Using VAST, teachers are prompted to consider student thinking, teacher's roles, and discourse while viewing classroom interactions. Also with VAST, teachers use evidence of student learning to interpret the events they notice in the video. Results indicated that the use of VAST supported those teachers to organize their reflections around student evidence of learning seen in the videos, contributing to professional vision development. Stürmer, Seidel, and Schäfer (2013) used a video- based tool, called the "Observer" that was developed by the researchers (Seidel, Blomberg & Stürmer, 2010a) to examine the changes in teacher practice in the context of professional vision. Professional vision was assessed after a five-month theory and practice term, in which pre-service teachers were

guided through a video-based, instructional course that used using video as examples to support acquisition of content knowledge, and as stimuli to reflect on the pre-service teachers own teaching experiences. Findings revealed significant change in professional vision in those participants who began at a low level while those participants who started at a high level remained stable over time. The combined theory-practice course was found to increase professional vision, especially among those with low professional vision before the course (Stürmer et al., 2013).

Over the years, researchers have studied teacher-noticing behaviors, and the differences between novice and expert teachers, while engaged in video analysis (Sherin 2007; Sherin & Han 2004; Star & Strickland, 2008; van Es & Sherin 2002; van Es & Sherin, 2008). Sherin and Hahn (2004 & 2009) studied teacher learning, and the development of professional vision in the context of a video club, as the model for professional development, to find that teachers attained skills of attention, noticed student thinking, and discussed alternative pedagogy more often at the end of the yearlong video club; and participants' knowledge-based reasoning also demonstrated increase. New ways to reason about problems were evident as the year progressed. Star and Strickland (2008) examined the impact of video analysis as a means to improve mathematics teachers' practice, focusing on what teachers attend to and what catches their attention. Results of the study found that pre-service teachers were able to improve noticing behaviors. Participants most often noticed classroom management and tasks with limited ability to notice classroom environment, mathematical content, and communication prior to the video-analysis instruction. Pre-service teachers showed significant gains in noticing classroom environment and in commenting about mathematical content.

Seidel and colleagues continue to explore individual factors, learning opportunities, and intra-individual differences in using video as a tool in developing professional vision. Stürmer, Könings and Seidel (2015) found that professional vision development in pre-service teachers was related to the number of generic pedagogical courses in teaching and learning taken, as well as their interest in this content area. In addition, Stürmer et al. (2015) found that there was no relationship between the number of formal and informal OTL experiences with the ability to describe classroom situations. Hence, they suggested that these findings underscore the importance of general pedagogical courses and content specific learning in developing expertise. Furthermore, when considering the impact of informal OTL, pre-service teachers learned from several sources. Changes in professional vision are dependent upon the guidance they receive and professional discourse experienced in their internship schools.

Stürmer, Seidel, and Holzberger (2016) examined the type and growth path of professional vision skills that they identified as description, explanation, and prediction; and they found that pre-service teachers varied greatly in descriptive, explanation, and prediction skills. A most significant finding was that entry-level professional vision skills are homogenous in beginning teachers, and that growth in these skills is linear, with significant differences in the rate of growth in description and prediction skills. Their study indicated that there were no significant benefits to the theoretical-based or video-based course of instruction (Stürmer et al., 2016).

Using frameworks to analyze teaching and learning. Feiman-Nemser (2001) acknowledged that learning to teach takes time, and involves learning to acquire tools to study one's own practice through observation, interpretation, and analyses. Building

reflective and analytic skills requires support and practice (Dewey, 1938; Rodgers, 2002a; Schön, 1987). Teacher education programs struggle with methods to teach future educators to respond to, reflect on, and enact teaching practices; and adding requirements to reflect upon practice, without needed guidance, results in superficial learning (Barnhart & van Es, 2015; Chung & van Es, 2014). Recent research on using video as a tool to support reflection and impact teaching practice provides us with varied results (Barnhart & van Es, 2015; Chung & van Es, 2014; Santiago et al., 2007; Sun & van Es, 2015; Beisiegel, Mitchell, & Hill, 2017).

Several researchers (Barnhart & van Es, 2015; Sun & van Es, 2015; Santiago et al., 2007; Santiago & Angelici, 2010) have hypothesized that teachers who have opportunity to reflect on their work, and learn to analyze teaching in systematic ways are better prepared to respond to the challenges of practice. Beisiegel, Mitchell, and Hill (2017) examined the use of the observation tool, the *Mathematical Quality of Instruction* instrument in professional development of classroom mathematics teachers and found that teacher has similar depth in conversation about teaching practice regardless of the type of video viewed (stock vs their own) or the type of facilitation (teacher led vs facilitator led). Barnhart and van Es (2015) investigated how pre-service teachers draw upon the framework provided through a video-based course after the conclusion of the course, when they analyze their own teaching as required for teacher licensure. Results indicated that the depth of use of the framework varied among the candidates, as did the relationship between attending, analyzing, and reflecting skills. Furthermore, their findings suggested that those enrolled in the video-based course were more sophisticated in attending to instances of student thinking, analyzing the evidence, and offering

adjustments to instruction, when compared with the cohort who did not enroll in the video-based course.

Santagata and colleagues (Santagata et al., 2007; Santagata & Angelici, 2010; Santagata & Guarino, 2011) investigated the use of a video-based course using the Lesson Analysis Framework (LAF) and declared ambiguous results. In a study that compared the use of LAF with the Teacher Rating Framework (TRF), Santagata and Angelici (2010) found that video-based instruction, using the LAF, increased the type of comments provided in reflection. Participants in the video course that used the LAF provided more elaboration, discussed effects on student learning, suggested alternatives to instruction, and provided links to evidence more often than those who used the TRF video-based instruction. In a similar study, Santagata and Guarino (2011) explored the impact of two courses that make extensive use of video and the LAF. The focus of this study was to measure changes in pre-service teachers' ability to analyze teaching, with the hypothesis that analyzing and attending skills can be taught to pre-service teachers (Santagata & Guarino, 2011). Video was the main tool used to develop the pre-service teacher analysis skills. Video of interviews with students about mathematical thinking, videos of classroom lessons to watch together, and pre-service teachers' videos of field-placement lesson teaching were used throughout the intervention to practice applying the LAF. Results of the study showed that pre-service teachers' ability to describe the activities of the lesson did not change over time; however, commentaries became more elaborate and integrated. Finally, approximately half of the pre-service teachers' ability to propose alternative strategies significantly improved over time. Video-based activities, with purpose and guidance, were successful in supporting pre-service teachers' ability to

attend to details of instruction, and to make student thinking visible (Santagata & Guarino 2011).

How does video analysis affect teaching practices? The use of video in teacher learning has progressed from influencing reflection and noticing skills to investigating the impact of video analysis on teacher practice (Santagata & Yeh, 2014; Sun & van Es, 2015). Using video of classroom instruction has been found for teachers to make it possible to connect knowledge to practice (Borko et al., 2009; Sherin & van Es, 2009). It provides pre-service teachers with a common set of experiences to develop a shared language for discussing classroom practice. As a permanent record, video provides a depth for reflection, because it allows for slower, more deliberate analysis (Santagata et al., 2007).

Sun and van Es (2015) continued to examine the effects of the video-based course *Learning to Learn from Teaching* (LLfT), as they explored the possibilities to improve pre-service teachers' vision of ambitious instruction. The researchers viewed noticing in practice as creating opportunities to make student thinking visible, a key component of ambitious pedagogy (Ball & Cohen, 1999: Lampert et al., 2010; Thompson et al., 2013), and they proposed that classroom documents, including video, can help pre-service teachers learn strategies for eliciting and respond to student thinking during instruction (Sun & van Es, 2015). Findings supported the use of video to learn to analyze teaching in systematic ways. Participants in the LLfT course were able to enact the high-leverage, responsive teaching practices with greater frequency than the cohort who did not take the LLfT course. More specifically, pre-service teachers enrolled in the video-course made space for student thinking, paused to consider student questions and ideas, rephrased

student ideas during instruction, and pursued student thinking by asking students to explain their understanding (Sun & van Es, 2015).

Santagata and Yeh (2014) further examined the relationship between analyzing video in university coursework with the ability to teach in ways to make student learning visible. The research used data from the Task 3 submission to the Performance Assessment for California Teachers-Teaching Event (PACT-TE), required for teacher licensure; and it focused on the teaching candidates' ability to reflect on strategies to monitor student learning and student learning evidence. Their study supported the use of the LLMT course to increase the pre-service teachers' ability to use evidence of student thinking and learning to analyze their own classroom practices. Nine of twelve participants in the LLMT course cited specific evidence for student learning and missed opportunities in their PACT-TE task-three submission, while only two of the participants in the control group cited evidence for student learning and missed opportunities. The LLMT participants were able to link making student thinking visible during teaching with the success of their own teaching, while there was little evidence of this occurring among the non-LLMT participants. Santagata and Yeh (2014) believed that their study provides evidence that video-and-practiced based preparation allows pre-service teachers to learn to analyze their own teaching and to support their learning to teach in ways that make student thinking possible. They suggested "…it is important to place PST's on the right trajectory to continue to learn from their practices overtime" (p. 511).

Conclusion

In this study, I examined pre-service teachers' use of self–video as a tool to study their practice. More specifically, I explored pre-service teacher learning and its

relationship to self-reflection. Current and peer-reviewed literature provided much information about the use of video as a tool for teacher learning. However, the use of video has become an important tool for teacher learning in teacher preparation and professional development programs (Borko, Jacobs, Eiteljorg, & Pittman, 2008; Brophy, 2004; Goldman, 2007; Blomberg et al., 2014). Feiman-Nemser (2001) argued that learning to acquire tools to learn from one's own teaching, such as self-video analysis, is one of five critical components of teacher education programs. Teachers must learn to study their own teaching to analyze and attend to student thinking and learning. Video clubs, video-based courses, video observation tools, and video-based performance assessments have all shown promising results in increasing teachers' attending and knowledge reasoning skills, both important components of professional vision, which enables improved teacher expertise (Berliner, 2001; Goodwin, 1994; Sherin, 2001; Sherin, 2007; Sherin & Han, 2004; van Es & Sherin, 2002). Video is a tool to support self-reflection about teaching experiences, a process that both Dewey (1938) and Schön (1983) propose necessary for learning.

Recent changes in teacher licensure in many states now mandates performance assessment as the standard for initial licensure. Initial teacher education candidates, at this Midwestern University, are required to submit video records and self-analysis to the licensing agency, as evidence of their abilities to be successful teachers. Pre-service teachers' ability to reflect upon their knowledge of teaching and its application in teaching practice, coupled with reasoning about the impact on student learning, has never been more important to investigate. This study sought to add to the under-researched area about the impact of self-video records on reflection of pre-service teachers.

Moreover, this study sought to investigate how pre-service teachers' use self-video to learn from their own teaching within one teacher education program that mandated the use of self-video analysis as preparation for teacher licensure. The study examined what teaching practices pre-service teachers notice and what perceived changes to practice they identified as a result. The interpretive nature and research questions suggested that qualitative methodology was the best fit for this study, described in Chapter 3.

Chapter 3: Methodology

This study sought to explore pre-service teachers' experiences with self-video analysis as a tool to study their own practice. Particularly, the research questions examined how video records of one's own teaching effect self-reflection, and how pre-service teachers perceive change in practice as a result of viewing self-video. The interpretive nature of this dissertation fit best within a constructivist-interpretive paradigm in the genre of qualitative research.

Qualitative research occurs in natural settings and is grounded in the lived experiences of people (Creswell, 2003; Lincoln & Guba, 1985; Merriam, 2009). Merriam (2009) suggested that researchers using qualitative methodologies "would be interested in (1) how people interpret their experiences, (2) how they construct their worlds, and (3) what meaning they attribute to their experiences" (p. 23). Furthermore, Merriam (2009) proposed that researchers choose a qualitative design, because their research questions involve discovery and interpretation of experience, rather than hypothesis testing. Denzin and Lincoln (2005) characterized qualitative research as:

> A situated activity that locates the observer in the world. It consists of a set of interpretive, material practices that make the world visible. These practices transform the world. They turn the world into a series of representations, including filed notes, interviews, conversations photographs, recording, and memos tot the self. At this level, qualitative research involves an interpretive, naturalistic approach to the world. This means that qualitative researchers study things in their natural settings, attempting to make sense of, or interpret, phenomenon in terms of the meanings people bring to them. (p.3)

My research study examined the use of self-video analysis as a tool for reflection (a situated event) in a teacher education program (natural setting). It was my hopes that this study would make visible the multiple, interpretive experiences that pre-service teachers embrace while using video to enhance their self-reflection skills. Qualitative research seek(s) "answers to questions that stress how social experience is created and given meaning" (Denzin & Lincoln, 2005, p. 10). The nature of this study asked questions that were minimally theorized, and best answered with words, rather than numbers, forcing the researcher to interpret the data to reconstruct the subjects' realities (Lincoln & Guba, 1988; Merriam, 2009). As such, a basic qualitative research design framework, using tools of naturalistic inquiry, was utilized, with attention directed to the rigor and trustworthiness of both design and implementation.

Overview and Research Questions

This study drew heavily on the characteristics of Naturalistic Inquiry (NI) first described by Lincoln and Guba (1985). NI embodies characteristics, such as natural setting, human as the instrument, purposive sampling, inductive data analysis, grounded theory, and negotiated outcomes. Such characteristics informed the following research questions:

1. How does examining one's own teaching performance on video affect self-reflection?
2. When pre-service teachers engage in self-reflective video analysis:
    a. What teaching practices do they notice?
    b. How do they identify needed change to teaching practices?

Epistemology and Methodological Choices

In this study, I adopted a constructivist-interpretive paradigm (first identified as the naturalistic paradigm), that considers a relativist ontology and transactional-subjectivist epistemology. The constructivist-interpretive paradigm holds the belief that each individual constructs his own reality so there are multiple interpretations. The relativist ontology puts forth that knowledge is a social reality that is created through individual interpretation. The transactional-subjectivist approach employs the belief that people cannot be separated from their knowledge; hence, there is a clear link between the researcher and research subject (Denzin & Lincoln, 2000; Guba & Lincoln, 1994). This paradigm is based upon the philosophy of Edmund Husserl's phenomenology and Wilhelm Dilthey's study of interpretive understanding, called "hermeneutics." It underscores the importance of multiple realities socially constructed by participants (Mertens, 2005). This philosophy holds that all reality is interpreted and constructed in different ways by each individual (Patton, 2002). The notion that underlies this paradigm is that no single reality or truth exists, but rather that reality is created by the interaction between the known and unknown, as does the belief in a set of naturalistic methodological procedures (Denzin & Lincoln, 2000; Lincoln & Guba, 1985). The interpretivist researcher relies upon the "participants' view of the situation being studied" (Creswell, 2003, p. 8). In this study, I gathered data to understand how students perceive the effects of using self-video to aid in reflection, as well as the students' perceptions of change in their teaching practices attributed to self-video analysis.

The conceptual framework of reflection parallels the relativist ontology adhered to in the constructivist-interpretive paradigm. Dewey (1933) recognized that reflection is

a disciplined way of thinking to make meaning unique to each individual. He defined reflective thought as "active, persistent, and careful consideration of any belief or supposed form of knowledge in light of the grounds that support it and the further conclusions to which it tends" (Dewey 1933, p.9). Based upon the theories of Dewey, Schön, and others, I viewed self-reflection in this study as a process that individuals undergo to construct an understanding of teaching and learning processes. Each time pre-service teachers used video of their own teaching to self-reflect, they added to their understanding of their own teaching.

In their classic approach, Lincoln and Guba (1985) provided a set of characteristics of five axioms in the Naturalistic Paradigm that contrast with the Positivist Paradigm. Axiom 1 considers the nature of the reality or ontology. In the positivist paradigm, reality is viewed as single, tangible, and fragment able. In the naturalistic paradigm, realities are multiple and constructed; however, some level of understanding (verstehen) can be achieved. Axiom 2 considered the epistemology defined as the relationship of the knower to the known. In the positivist paradigm, the knower and known are independent while in the naturalistic paradigm the researcher and "object" of inquiry interact and are inseparable. Axiom 3 was concerned with the possibility of generalization. The positivist view suggests that time and context-free generalizations are possible, while the naturalistic view suggests that time and context-bound working hypothesis are developed to describe the individual case studied, rather than generalizing. Axiom 4 considered the possibility of causal linkages. The naturalistic paradigm suggests that it is impossible to distinguish between cause and effect, while in contrast, the positivist paradigm suggests the ability to distinguish cause and effect. Axiom 5

suggests that the naturalist paradigm is value-bound, while the positivist paradigm is value-fee. Further, values influence what the researcher studies, the paradigm choice, and substantive theory choice used to guide data collection and analysis. There must be value-resonance for the inquiry to produce meaningful results.

Further consideration of the interpretive/constructive paradigm by Guba and Lincoln (1989) reveals a set of four specifications to be considered meaningful from the constructivist/interpretivist lens. The first specification is that research is pursued in the natural setting to understand the multiple realities assumed. The time and context of the constructors is important. For this study, the setting was the university and its school context at the time the pre-service teachers were engaged in self-reflection. The second specification is that the researcher enters the study as a learner, and is open to the participants' perception of the research topic under study. This specification was accomplished using the human as the instrument. In NI, the researcher chooses to use him- or herself, as well as other humans, as the primary data gathering instruments because of the lack of adaptability of non-human instruments, such as paper/pencil surveys. The human, as an instrument, considers the investigator's interaction with the research site, and consequent biases that might result. It is best suited to the multiple shaping influences present. As a criterion evident in my study, the research questions sought to explore how pre-service teachers used video of their own teaching during self-reflection, and to discover what pre-service teachers noticed when engaged with self-video analysis. The third specification suggests that, since the human is the instrument, the methods employed must be natural to humans, and must include talking to people, observing activity, and reading their documents. Such steps are most associated with

qualitative methods, and were evident in the data collection plan for my study. Interviews and document review provided the data for this study.

Importantly, the final criterion put forth by Guba and Lincoln (1989) is the right to use tacit knowledge to discover the unknown. Tacit knowledge is the genuine knowledge one has gained from experience, without being self-consciously aware of having it. It is the knowledge that appears without purposeful recall. Guba and Lincoln (1989) suggested that tacit knowledge enables researchers to be situationally responsive, adaptable, and flexible to important information. As a researcher, I began the study with some knowledge of the inquiry subject, and relied upon tacit knowledge to guide the study and analysis of findings.

Lincoln and Guba's (1985) NI is a classic theory cited in much research. The research questions of my study, setting, and the social context of this research seem best served using many of the tools of NI.

Research Design

The study was informed by the tools of Naturalistic Inquiry (NI) to understand the experiences pre-service teachers gained with self-video analysis as a tool to learn from their own teaching. When examining my research questions and the limitations present, I determined that a basic qualitative research design was the best approach to seek the answers. Percy, Kostere, and Kostere (2015) proposed that "generic qualitative inquiry investigates people's reports of their subjective opinions, attitudes, beliefs, or reflections on their experiences, of things in the outer world" (p. 78). They cautioned that when this approach is applied to ethnography, phenomenology, and case study designs, it is not

appropriate. Ethnography seeks to understand the interaction of individuals with culture. Phenomenology seeks to understand the essence and structure of the phenomenon. Case study research explores a bounded system with in-depth description (Merriam, 2009). The design of this study best fit in a generic, qualitative research design.

Using the lens of reflection (Dewey, 1933; Rodgers, 2002a; Schön, 1987), I utilized semi-structured and focus group interviews, field notes from viewing teaching event video records, and participant written self-reflection documents, to address the research questions. The use of multiple data sources provided much insight into the topic being studied, and enhanced the credibility of the findings (Patton, 2002).

Setting and Participants

This study was conducted in a teacher education program within a public, Midwestern research university in the U.S. The university is located in a suburban area, in proximity to a large urban city. The university had a student population of nearly 17,000; of these, 41% identified as male, and 58 % identified as female. When examining ethnicity, the student population identified as 68.4% white; 14.4 % African American; 2.8% Hispanic; 3.3% Non-Resident Alien; 4.9% Asian; .3% American Indian; and the remainder unspecified. Specifically, this study focused on the final year of the COE's teacher preparation program, recruiting participants from Practicum 1 and Practicum 2 field-experience courses. This program certified 417 teachers in 2014, 378 teachers in 2015, and 299 teachers in 2016 at the undergraduate level (K. Schroeder, personal communication, March 9, 2017).

The selection of the setting and participants for this research was purposeful sampling (Glaser, 1978; Mason, 2002; Patton, 2002). Patton (2002) described purposeful

sampling as the identification of a small number of cases that allow in-depth investigation of the phenomenon under study. He emphasized, "The logic and power of purposeful sampling lie in selecting *information rich cases*" (p. 230). The context of the COE practicum courses supports this notion, as the use of video was required to support reflection within these courses. Creswell (2013) noted, "Researchers select participants that can purposefully inform the study" (p. 156). Marshall (1996) identified the purposeful sample as the most common sampling technique, where the researcher identifies variables that will affect the participant's contribution leading to the most productive sample. The mandated use of video as a tool for self-reflection is the identified variable in this research.

More specifically, I employed intensity and maximum variation sampling. An intensity sample consists of information-rich cases that manifest the phenomenon of interest intensely, but not to the extreme. All of the participants were required to have used self-videotaping (Patton, 2002). Maximum variation sampling cuts across the variation of the sample population. I was successful in recruiting participants from many of the subject areas of the teacher certification program, gender, and age.

The goal of this study was to gain an understanding of pre-service teacher's experiences in using self-video analysis as a tool for his or her own learning. I selected 12 participants among pre-service teachers enrolled in the Practicum 1, or Practicum 2 field-based student teaching courses that utilized self-video analysis as a course requirement. The Practicum 1 course is situated within local schools that partner with the university. Pre-service teachers spend two full days each week emerged in the school community. The Practicum 2 course is the final course of the teacher preparation

program and might be best associated with the like of a student teaching course. Pre-service teachers most often continue in the same school placement as in the Practicum 1 course, however they spend four full days each week within the school community. Morse (2000) suggested that saturation in sample size is determined by the scope of the study, nature of the topic, quality of the data, and study design. Since my sample was homogeneous, the scope of research narrow, and the topic under investigation clear, I assumed saturation was reached at this point. The practicum courses, taken sequentially in the final year of a student's program plan, are each 16 weeks long, respectively. Clinical educators, who spend time on-site in the schools, supervised the enrolled students.

Participation in this study was voluntary. I recruited participants during the first Grand Seminar, an informational meeting required of all practicum students enrolled in Practicum 1 or Practicum 2, in early August of 2017 with Institutional Review Board (IRB) approval. I made a brief presentation to the group to explain the research purpose and procedures, as well as commitment requirements of participants. I distributed the same information in a written document. Additionally, I was available during the Grand Seminar to answer questions, and provided my contact information for further questions, and follow-up, if necessary. Initially, twenty-two students expressed interest through a written sign-up sheet. I sent a follow up email to each interested person with the consent form (Appendix C) to participate that resulted in twelve participants.

The study participants were teaching in different school districts, grade levels, seeking several types of teaching certification, and were of different ages and gender. There were seven females and five male, participants ranging in age from 21-47 years.

Four participants were graduate students who held an undergraduate degree and were seeking teacher certification. Eight participants were seeking an initial undergraduate degree and teacher certification. Four participants were enrolled in the Practicum 1 field-based course, which required fieldwork in the schools for two full days each week. Eight participants were enrolled in Practicum 2, which required fieldwork in the schools for four or five days per week. As the final course before graduation, practicum students, as study participants, were identified by pseudonyms throughout the study to protect their identity.

The settings for this study included the Midwestern University campus, seven school districts, and nine individual schools near the University campus. Each school district and individual school was assigned a letter code for research purposes.

District A is a fully- accredited public district north of the major city, providing education for more than 11, 000 children from preschool through 12th grade. It is comprised of 17 elementary schools, 3 middle schools, 3 high schools, and one alternative school. One-hundred percent of the students receive free lunch. School AA is an elementary school in district A. It is comprised of 68.8% African-American students and 21.9% Caucasian students. School FF is a high school in district A. It is comprised of 78.6% African-American students and 15% white students.

District B is a fully- accredited rural school district providing education for more than 17,000 children. The district has one early childhood center, ten elementary schools, five middle schools, 3 high schools, and 1 alternative high school. The free and reduced lunch rate is 18%. School BB is an elementary school in district B. There are 704

students enrolled in grades preschool-5. It is comprised of 11.9% Asian, 11.6% African-American, 59.4% Caucasian, and 7.7 % multi-race children.

District C is a fully- accredited suburban public school district providing education for more than 6200 children. The district has one early childhood center, six elementary schools, two middle schools, and one high school. The district also has a center for gifted education. The free and reduced lunch rate it 74.5%. School CC is an elementary school in district C. There are 529 students enrolled in grades preschool-5. It is comprised of 48.2% African-American, 20.2% Hispanic, 20.6% Caucasian, and 10% multi-race children.

District D is a fully- accredited suburban public school district providing education for more than 17,400 students. The district has been awarded 17 Blue Ribbon awards for excellence. There is one early childhood center, 18 elementary schools, five middle schools, five high schools and one alternative high school. The free and reduced lunch rate is 19.9%. School DD is an elementary school in district D. There are 440 students enrolled in grades preschool -5. It is comprised of 13.9% Asian, 14.10% African-American, 7% Hispanic, 57.3% Caucasian, and 7.5% multi-race children. School JJ is also an elementary school in district D. There are 444 students enrolled in grades K-5. It is comprised of 11.7% Asian, 27.9% African-American, 41.7% Caucasian, 8.8% Hispanic, and 9% multi-race children.

District E is a fully- accredited rural, public school district providing education for approximately 18,000 students. It has one early childhood center, 16 elementary schools, four middle schools, five high schools, and one alternative high school. The free and reduced lunch rate is 20.6%. School EE is an elementary school in district E. There

are 422 students enrolled in grades kindergarten - 5. It is comprised of 7.8% Hispanic, 78.9% Caucasian, and 6.2% multi-race children.

District F is a fully- accredited suburban public school district providing education for almost 11, 400 students. It has one early childhood center, 11 elementary schools, four middle schools, and two high schools. The free and reduced lunch rate is 31%. School GG is a high school in district F. There are 1731 students enrolled in grades 9-12. It is comprised of 91.6% Caucasian children.

District G is a provisionally- accredited urban, public school district, providing education for more than 21, 500 students. The free and reduced lunch rate is 100%. School HH is an elementary school in district G. There are 254 students enrolled in grades prek-5. It is comprised of 11% Asian, 58.7% African-American, 14.6% Hispanic, and 15.7 % Caucasian children (retrieved from https://mcds.dese.mo.gov/quickfacts/Pages/District-and-School-Information.aspx).

Participant characteristics and practicum district and school placement, and classroom characteristics are listed in Table 1.

Table 1: Participant Characteristics and Practicum Placement

Participant Pseudonym	Age	Gender	Ethn-icity	Certification Area	Level and Practicum	School/ District Placed	Classroom Placement	Number of Students	Gender of Students	Identified Special Needs/ELL
M	21	F	C	ELED/SPED	U/2	AA/A	4th grade	23	M=13 F=10	4 IEP
R	23	F	C	ECE	G Prac 2	BB/B	Kindergarten	18	M=10 F=8	1 IEP 3 ELL
KA	22	F	C	ELED/SPED	U Prac 2	AA/A	3rd grade	23	M=9 F=14	5 IEP 1 Gifted
J	47	M	C	ELED/SPED	U Prac 1	CC/C	1st grade	19	M=10 F=9	2 IEP
KW	23	F	C	ELED/TESOL	U Prac 2	DD/D	2nd grade	18	M=12 F=6	1 IEP 9 ELL
K	24	F	C	ECE/ECSE	U Prac 1	EE/E	Kindergarten	23	M=13 F=10	3 IEP
DW	27	M	C	SEC/Social Studies	G Prac 2	FF/A	9th grade-12th grade	22-31 is the section size	About evenly split	Not recorded
S	22	F	C	ECE/ECSE	U Prac 2	AA/A	1st grade	25	M=14 F=11	6 IEP
SK	24	M	C	SEC/Chemistry	G Pract 2	GG/F	9th and 10th grade	13-31 is the section size	Not identified	1 IEP 5 504's
L	44	F	C	ECE	G Prac 2	HH/G	Kindergarten	21	M=11 F=10	2 IEP 2 ELL
D	45	M	C	ELED/SPED	U Prac 1	HH/G	5th grade	28	M=7 F=21	1 IEP Several ELL
B	34	M	C	ELED/SPED	U Prac 1	JJ/D	5th grade	21	M=10 F=11	2 Gifted 1 ELL

Key: ELED: Elementary Education; SPED: Special Education; ECE: Early Childhood Education; ECSE: Early Childhood Special Education; SEC: Secondary; G: Graduate Student; U: Undergraduate; Prac: Practicum; IEP: Individual Education Plan; C: Caucasian

Data Collection

The focus of the study was to explore pre-service teachers' experiences with self-video analysis as a tool to study their own practice. Specifically, the research questions examined how video records of one's own teaching affect self-reflection. Data collection occurred during the fall semester, 2017. All data gathered from participants was collected with explicit permission from the participants and in full compliance with the IRB guidelines, prior to collecting data. The researcher was available to answer any questions the participants had at the time of consent. To honor the qualitative research tradition, multiple data sources was used to gather insight about the topic. These included: 1) participant interviews, 2) a focus group interview of Clinical Supervisors, 3) document analysis of participant written reflection, and 4) field notes from observations of teaching videos.

Individual and focus group interviews. Individual interviews were conducted twice with each participant during the study to ascertain their experiences with using video to learn from their own teaching. The first interview took place in the first month of the semester and the second interview took place in the final four weeks of the semester. This allowed the participants to have multiple use of self-video analysis to inform their self-reflection. The second interview protocol guide was informed by my observations of the participants' comments on their teaching videos. Interview questions were open-open ended and flexible to allow the participants to offer any thoughts about their experiences. Interviews lasted between 20 and 45 minutes.

The use of interviews, as a tool to obtain an insider prospective, is common in qualitative research (Denzin & Lincoln, 2005; Fontana & Frey, 1994; Merriam, 2009; Stake, 1994; Yin, 2005). Patton (2002) suggested, "The purpose of interviewing, then, is to allow us to enter into the other person's perspective" (p. 341). This study was about understanding the different perspectives of pre-service students in using self-video as a tool in self-reflection. The most appropriate way to gather data was an interview or focus group as survey data would not provide the in-depth examination of the phenomenon under study. Interviews allow participants to speak in their own voice to express their thoughts and feelings (Berg, 2007). Interviews with participants were semi-structured to allow for consistent data collection of pre-determined introductory and particular topics. At the same time, the semi-structured format affords the flexibility to engage in natural conversation, allowing for probing of deeper insight as well as respect of the participants' thoughts and feelings (Creswell, 2013; Patton, 2002; Rubin & Rubin, 2012). Rubin & Rubin (2012) defined the qualitative interview as one that looks for information-rich

answers by asking open-ended questions in a non-structured order. The order of asking the questions is a result of the exchange between the interviewer and participant, creating a balance between gaining information, and respecting the participant's way of telling the story (Flick, 2014). Using the semi-structured interview process, rather than a highly structured process that demands strict adherence to predetermined questions (Merriam, 2009), is an intentional decision made to support the naturalistic inquiry design of the study.

The initial semi-structured interview with each participant took place in the first month of the fall semester 2017. It was used to gather information about each participant, including details of how the participants used the videos of their own teaching as a source of data in their self-reflection. Information gathered included demographic information, such as name, subject certification area, and identification of enrollment into Practicum 1 or Practicum 2, and the grade and subject level of the classroom they were placed; contextual factors about the school and classroom setting; and previous experience with video analysis.

The interview protocol (Appendix A) began with an open-ended question to encourage participants to share their experience with self-videotaping analysis in self-reflection. Merriam (2009) emphasized the need to ask good questions with different types of questions yielding different types of answers. Patton (2002) described six different types of questions to ask regarding 1) experience and behavior, 2) opinion and value, 3) feeling, 4) knowledge, 5) sensory, and/or 6) background and demographic. The protocol avoided "yes/no questions, multiple questions within one question, and leading questions, such as: "Don't you agree that video is a good tool for teachers?" as suggested

by Merriam (2009). Probing was an important part of the interview process, as well. Probing included follow-up questions to seek more information or clarity, asking for more description and elaboration, and gaining detail in a demeanor that avoids a feel of interrogation (Merriam, 2009). I took handwritten notes during the interview to identify the need for probing questions, and extensions, or other information deemed necessary for further investigation. Seidman (2013) suggested that this note-taking process allows for deeper engagement by the listener. It forces concentration on the responses, and avoids reinforcing comments.

The interaction between the interviewer and participant is important, and often the level of rapport between the two influences the success of the interview (Patton, 2002). It is important for the interviewer to be aware of the stance between them. Merriam (2009) underscored the importance of maintaining neutrality concerning the knowledge the participant brings to the exchange. As an interviewer, I was patient, listened intently, and accepted the answers offered by the participant without judgement.

The second semi-structured interview occurred in the last four weeks of the fall semester, 2017. The field notes I took, while examining the comments the participants' included on the video records stored on the Teaching Channel, informed this second interview protocol (Appendix B). My intent in observing these comments of each participant was to refine the interview questions to focus on the noticing behaviors of each individual participant. I used the reflective protocol guide presented by Powell (2005) to guide the questions that I prepared for each individual participant. Powell (2005) suggested a range of possible questions in the categories of intentions and

purpose, self-awareness, practical reflection, technical reflection, perceptual awareness, and critical reflection.

I held one focus group interview with the clinical supervisors of the participants at the conclusion of the semester. This happened in early January 2018, after submission of grades, in order to prevent any possible bias from occurring. The clinical educators were not informed of participants' names. The focus group interview provided data about the practicum participants' use of video in self–reflection, from the viewpoint of the clinical educators who have supervised their field experience, as well as guided and assessed the self-reflection of their teaching. The clinical educators had shared knowledge about the reflective behaviors of the participants. Krueger and Casey (2009) suggested that the focus group participants share context and knowledge of the research subject. Furthermore, the social interaction of the participants in the group affects the participants' response, giving a different dynamic than the individual interview. Patton (2002) explained that, as participants hear one another's response to the questions, they are able to make additions to the comments. However, they do not need to agree or reach consensus, nor disagree. The aim is to provide a space for participants to consider their own perspective in light of the views of others.

The focus group interview, which lasted approximately 45 minutes, shed light on the impact of using self-video analysis as a tool to learn from the supervisor perspective. The interview protocol (Appendix E) contained questions such as "How do your students use self-video in their own learning?" , "Have you observed any change in teaching behaviors as a result of self-video analysis?" and "What do your students notice as they watch their self-video?"

Data preservation and confidentiality. All interviews were audiotaped and transcribed via digital media solely by the researcher. Digital files were stored on a password-protected computer. Individual interviews, lasting 20-45 minutes, were conducted in-person at convenient times for participants, and for most participants in the office of the researcher to ensure privacy. Two interviews were conducted at the participants' school site and one was conducted in a common area at the university. The focus group interview, lasting 45 minutes, was held in a comfortable group space within the university, during a mutually agreed upon time. Interviews began with consent forms presented to the participants if not already obtained (Appendices C & D). I informed all participants the interviews would be audio-recorded, and began recording after the consent forms were signed and participants comfortable.

Document collection. Document collection is a less-intrusive method of collecting data than interviewing that will provide evidence to either corroborate or contradict the other collected data (Merriam, 2009). Merriam (2009) suggested that documents could be readily available to the researcher, and often produce usable data to the creative researcher. Each participant was required to submit an assignment titled, "Map My Journey," as a requirement of the Practicum 1 or Practicum 2 course. The assignment asked the students to choose two recorded lessons taught, one from the beginning, and one from the end of the practicum experience, to reflect on their professional growth in enactment of teaching practices. The instructions guided the students to consider where they were, and where they are now, in exploring, envisioning, and enacting teaching practices as well as the challenges they faced during their practicum time. Students were asked to provide time-stamped comments into the

recorded videos using the Teaching Channel platform to substantiate their reflective comments. I used the data derived from these documents in the same manner as I used the interview data, to understand how pre-service teachers use video of their own teaching in their self-reflection and to identify their perceived changes in teaching practices. Merriam (2009) noted that documents could be a valuable source of data, providing that they are authentic, acquired in a systematic way, and provide insight to the research question. Furthermore, the researcher noted that data from document analysis can provide descriptive information, advance new categories and hypotheses, provide historical understanding, and verify emerging hypotheses.

Participant comments on teaching video records. Each participant had at minimum two self-video recordings stored on the Teaching Channel Team platform as a requirement of the Practicum 1 and Practicum 2 courses. As the researcher, I viewed the comments the participants made on their own video records to inform the second interview protocol. Field notes were recorded during each of the video comment viewings. These provided another set of data to aid in the rich description of qualitative research (Creswell, 2013; Patton, 2002). Merriam (2009) emphasized that field notes should be highly descriptive, and in a format that allows the researcher to find information easily. Description should include the setting, people, and activities. She also underscores the importance of the reflective component of the field notes, captured by observer comments in the margin of the written document.

Transcription

As the researcher, I transcribed the audio recordings associated with all the interviews using the free software program Sound Organizer that was available with the

voice recorder purchased for the study. I followed the protocol specified by McLellan, McQueen, and Neidig (2003), which states:

> An audiotape should be transcribed in its entirety and provide a verbatim account of the interview. To ensure that all transcripts are generated systematically, we require that transcripts include elisions, mispronunciations, slang, grammatical errors, nonverbal sounds (e.g., laughs, sighs), and background noises (p. 5).

Transcriptions included the date, time, place, interviewer, and transcriber. A brief description of the participant's demographic information including gender, age, subject-area of certification, studio school assignment, and clinical educator assigned as the supervisor, was included at the beginning of the transcription. All identifying information was removed prior to analysis and conclusion of the study. The notation: "End of Interview" was included to signal its conclusion. Conventional transcription rules of Silverman (1998), such as using ellipses for pause, and down arrows for falling pitch or intonation, were used to note events during the interview (Appendix F). Line numbers were added when the transcription was complete. Transcription documents were shared via email with participants after completion to confirm accuracy. Audio files and transcription files were maintained on password-protected computers, google drive, and drop box to ensure confidentiality and availability.

Data Analysis

A hallmark characteristic of qualitative research is the accumulation of a large amount of raw data, thus making it crucial to organize data in a timely manner (Denzin & Lincoln, 2005; Merriam, 2009; Stake 1995; Yin, 2003). Raw data in qualitative studies is text, as in newspapers, emails, folktales, life histories, and narratives (Denzin & Lincoln,

2000). Data collection in this study yielded text data. Another trademark of some, but not all, approaches to qualitative research is that data analysis is an inductive and comparative process that happens simultaneously with data collection (Corbin & Strauss, 1990; Merriam, 2009). Creswell (2003) stated, "In qualitative methodology inductive logic prevails. Categories emerge from informants, rather than are identified *a priori* by the researcher" (p. 7). Merriam (2009) emphasized the importance of the simultaneous data analysis and collection process by stating, "the right way to analyze data in a qualitative study is to do it *simultaneously* with data collection" (p. 162). In keeping with Merriam's suggestions, I was engaged with the data throughout the study. Data analysis occurred in phases, commenced with the first interview, and continued throughout my writing of the final two chapters of the dissertation.

I employed the Grounded Theory method to analyze data only; theory construction was not a purpose of this research. I believed this method to be appropriate for the analysis of data in my study. This inductive process, a hallmark characteristic of Grounded Theory, happened simultaneously with data collection, beginning immediately after the first interview was transcribed (Corbin & Strauss, 1990; Merriam, 2009). The constant comparative method of data analysis suggests constant comparison of the data is an iterative process with data reduction as the goal (Glaser & Strauss, 1967). Data from individual and focus group interview transcripts and written reflections was compared continually in order to construct an understanding of the phenomenon of interest, "How pre-service teachers use self-video in self-reflection?" This constant comparison was the basis for the data analysis. "Making comparisons assists the researcher in guarding

against bias, for he or she is then challenging concepts with fresh data" (Corbin & Strauss, 1990, p. 9).

Coding is the fundamental process used by the researcher in Grounded Theory. Coding occurs in stages, however, the stages are not linear (Corbin & Strauss, 1990). The first stage is a microanalysis of the data and involves open and axial coding. "Open coding is the interpretive process by which data are broken down analytically" (Corbin & Strauss, 1990, p. 12). Merriam (2009) suggests that the process begin with reading the first interview transcript, and noting bits of data that seem interesting and relevant in the context of the study, and most important being open to any possibilities. This opening of the data, is why it is referred to as open coding, Microanalysis, conducted solely by the researcher, involved the open coding of interview transcripts from twenty-four semi-structured interviews, one focus group interview, and written reflection documents from the twelve participants.

This was accomplished by reading and re-reading the interview transcripts, field notes, and researcher memos line by line to identify basic units of analysis. Lincoln and Guba (1985) suggested that a unit must meet two criteria. First, it should provide information relative to the study; and second, it should be the smallest piece of information to stand by itself. Meaning units can be as small as a word, or as big as a paragraph. The microanalysis was done by hand, highlighting a paper copy of each transcript to identify the bits of data that seemed relevant to my research questions. Each interview was transcribed and coded as the study unfolded. I began developing a code book after reading the first interview transcript which I used to compare and discover the recurring regularities in the data (Glaser & Strauss, 1967; Merriam, 2009). I then gave

these units names or codes, the beginning step to generating categories within the data. Denzin and Lincoln (2000) suggested, “Coding is the heart and soul of whole-text analysis. Coding forces the researcher to make judgements about contiguous blocks of text” (p. 780). Charmaz (2012) stated, “Codes rely on interaction between the researchers and their data” (p. 5). Codes can also come from the words of the participants, known as in- vivo codes (Glaser & Strauss, 1999). Charmaz (2012) suggested that in vivo codes are terms the participants use that capture meaning or experience. An example might be “breaking the ice,” a term used by participants, and a code that everyone has a shared meaning.

This open coding process involved multiple re-readings of the interview transcripts, and document data, resulting in the creation of my initial codebook. Before the open-coding process was completed, I recognized commonalities with the objects and events and assigned same or similar codes. The initial coding chart contained 380 identified meaning units and over 200 initial codes. This detailed coding and comparison, informed by my research questions and conceptual framework, was the foundation of my data analysis procedures.

Data was given conceptual labels during the open coding process. The second part of data analysis involved making sense of all of the codes derived from identifying meaning units. In this stage, I closely examined the codes, and began to cluster them together as concepts based upon similarities and differences, as well as my interpretation of their meaning. A concept is an abstract illustration of “an event, object, or action/interaction that a researcher identifies as being significant in the data” (Strauss & Corbin, 1998, p. 103). This process of comparing initial codes to the concept names was

my initial interpretation of data and continued until I grouped all of the codes within one of the identified concepts or eliminated it. This process allowed me to investigate fully the phenomenon in terms of properties and dimensions. I completed this step of the process manually with index cards, sticky notes, chart paper, and markers. In my initial clustering of the over 200 codes, 16 concepts emerged. Examples of codes from the data include missed events, different perspective, noticed nervous habits, reflection in action, areas to improve, and engagement. Examples of concepts include comfort, confidence, video review, pedagogy.

Once concepts begin to accumulate, the method suggests that abstract categories be constructed (Corbin & Strauss, 1998). Merriam (2009) described the process as clustering the data units that seem to go together, and then naming the cluster that becomes the category. She defined a category as a conceptual element that has many individual bits of data from the coding process. Glaser and Strauss (1967) emphasized that the categories exist apart from the data used to derive them. The Grounded Theory method purports axial coding happens simultaneously with open-coding. "In axial coding, categories are related to their subcategories, and the relationship tested against the data" (Corbin and Strauss, 1990, p. 13). 'The process is termed "axial," because coding occurs around the axis of a category, linking categories at the level of properties and dimensions' (Strauss & Corbin, 1998, p 123). Properties are the characteristics of a subcategory/category, and the dimensions signify the range on which a specific property varies (Strauss & Corbin, 1998). Categories explain or represent the phenomenon under study. Sub-categories answer defining questions, such as: who, where, why, and how (Strauss & Corbin, 1998). Axial coding allows the researcher to discover relationships

between the categories that supports hypothesis creation and ultimately, theory construction if that is the research purpose.

As the process of analysis continued, I named the abstract categories, and considered subcategories, properties and dimensions, which relate to the research questions. This axial-coding process began to reassemble the data that was fractured in the open coding process (Strauss & Corbin, 1998). In the early stages, clarity between which concepts are categories or subcategories was missing. I manually manipulated the concept index cards for days to make sense of the data. I identified 13 abstract categories, some of which started as concepts initially and influenced by researcher memos I kept. These researcher memos provided a start to the naming process. Analytic memo writing is a tenant of the Grounded Theory method. Corbin and Strauss (1990) suggest "writing memos should begin with the first coding sessions and continues to the end of the research" (p. 10). Memo writing assists in the documentation section necessary for the audit trail. It was my way of keeping record of the stages of data analysis. Memo writing was also done by hand in a notebook or on scraps of paper that were transferred to a notebook. Subcategories were discovered with the use of a coding paradigm of conditions, strategies (action/interaction), and consequences. This level of detail allows theory construction to develop considering different levels of action regarding the phenomenon under study (Corbin & Strauss, 1990). During this phase, I also looked for negative cases that contradicted the categories and subcategories and adjusted them by either combining the categories, renaming, or forming a new category.

Together, the open and axial coding processes develop relationships between the concepts, as well as properties and dimensions to form categories and subcategories.

(Strauss & Corbin, 1998). At this point, I also included member checking and peer-review to increase the trustworthiness of the study. I received response from 25% of the members, all positively confirming my interpretation of the data. Lincoln and Guba (1985) emphasized the importance of going back to the participants checking for verification of the preliminary findings of the study. I continued to refine and revise the categories, even as I began writing the results. Categories were merged and rearranged to form the final four categories: Reflection, Noticed Behaviors, Perceived Changes in Teaching behavior, and Video-Taping Process.

The last phase in the microanalysis was to ensure that all the coded meaning units were associated with a category, subcategory, or property, or eliminated if not related to my research question. I eliminated all of the demographic concept codes as I determined they were not necessary to answer the research questions. I also eliminated the Videotaping Process category. While this provided compelling data, I decided this data did not answer my research questions and would best serve another project. Data identified for each of categories included identifying information, such as line numbers, and participants' pseudonym. This was accomplished as I created two versions of codebooks. The first codebook (Appendix G) contains the identifying data that supports each property and dimension. The second codebook (Appendix H) is more detailed, providing text description that supports the dimensions of the properties. I also utilized techniques, such as using diagrams, to support data integration and refinement. Displaying the patterns and relationships identified during data analysis is an important part of data analysis. Matrix displays and diagrams aid in summarizing the themes and identifying the patterns and relationships discovered in the data (Miles, Huberman, &

Saldana, 2014). I created three figures to depict the three categories that emerged from the data to answer my research questions (see Figures 1, 2 and 3).

As a final step, I identified causal relationships and patterns that emerged from the data, as well as confirmed their validity. Using Miles, Huberman, & Saldana's (2014) tactics for verifying conclusions, I included data triangulation, checking the meaning of outliers, getting feedback from the informants, and looking for negative evidence. I used data from participant interview transcripts, written reflection documents, and the focus group interview transcript. I sent the interview transcripts and data coding charts to members and peers for review. I shared my initial codes and code-book with my colleagues for review. Finally, I examined the one case of negative evidence and outliers with scrutiny.

Ensuring Quality and Rigor

The notion of quality is viewed differently in qualitative research, when it is compared with quantitative research, and qualitative research is dependent upon the investigation being conducted in an organized, ethical manner. Qualitative research findings reflect the chosen interpretive stance of the researcher, while other interpretations might exist. Interpretation is not proved, or disproved, by the mathematical means present in quantitative research findings. Thus, the notion of quality looks different in qualitative research.

The obligation falls to the researcher to maintain transparency of the methods used to arrive at the results (Huberman & Miles, 2002). Merriam (2009) stated the traditional terms of internal validity, external validity, reliability and objectivity have been replaced with the now widely adopted terms of credibility, transferability,

dependability, and confirmability, suggested by Lincoln and Guba (1985). Miles, Huberman, and Saldana (2014) paired traditional terms with viable alternatives when considering issues of quality: "1) objectivity/confirmability of quality work, 2) reliability/dependability/auditability, 3) internal validity/creditability/authenticity, 4) external validity/transferability/fittingness, and 5) utilization/application/action orientation" (p. 311). Regardless of whether the traditional or viable alternative terms are used, ensuring quality and rigor in this study was most important.

Objectivity/confirmability. Miles, Huberman and Saldana (2014) described objectivity as "explicitness about the inevitable biases that exist" (p. 311). My role and status in the study was described in full. I engaged both peers and colleagues in the review of data interpretation and conclusions. Researcher positionality is addressed below (pp 78-79). This quality standard was upheld, as I describe the general methods and procedures for the study. The data collection and data analysis sequence was clear and explicit. I provided a coding chart to illustrate the data reduction process. An audit trail was maintained to describe the methods and procedures in detail (Lincoln & Guba, 1985). Finally, the data from the study will be retained electronically for further review, if necessary.

Reliability/dependability/auditability. Merriam (2009) noted that, traditionally, reliability "refers to the extent to which the research findings can be replicated" (p. 220). When conducting qualitative studies, the more appropriate question is whether the findings are consistent with the data collected (Merriam, 2009). Miles, Huberman, and Saldana (2014) asserted that reliability involves ensuring that the study process is consistent and stable over time. I attest that my research questions were clear, and that

the methodology chosen to analyze data supported the investigation of the critical research questions. The data analysis procedures described a rigorous process to ensure reliability. An audit trail was maintained to provide clear documentation of all my research activities and decisions.

Internal validity/credibility/authenticity. Internal validity refers to the credibility of the study. Merriam (2009) equated internal validity with: "How congruent the findings are with reality." (p. 213). Miles, Huberman, and Saldana (2014) suggest that internal validity is improved when findings are clear, coherent, and systematically related. Triangulation is a primary method to increase internal validity or trustworthiness. Denzin (1978a) described triangulation as using multiple data sources, multiple researchers, multiple methods and multiple theories during data collection and analysis. Stake (1994) suggested, "Triangulation has been generally considered a process of using multiple perceptions to clarify meaning, verifying the repeatability of an observation or interpretation…" (p. 241). Creswell and Miller (2000) defined triangulation as a procedure researchers employ to find convergence among different sources of information. Data triangulation is evident in this study using data collected from individual and focus group interviews, as well as through using document analysis. I also sought to have investigator triangulation, by enlisting the support of another faculty member to examine the resulting patterns and themes.

As mentioned earlier, member checking is another common strategy to insure internal validity and credibility, shifting validity procedures to the participants. Lincoln and Guba (1985) stated that member checks are "the most crucial technique for establishing creditability" (p. 314) in a study. Member checking involves taking raw data

and interpretation of the data back to the participants for comment and accuracy, resulting in corroboration and feedback (Creswell & Miller, 2000; Stake, 1995). During the study, research participants were given several opportunities to review collected data and my interpretation of the data during the study.

Maintaining an audit trail is crucial to the validity and reliability of qualitative research. Lincoln and Guba (1985) described an audit trail as analogous to a fiscal audit. Researchers clearly document their inquiry process by keeping track of data collected, how categories were derived during the data analysis procedures, and how decisions were made (Creswell & Miller, 2000; Merriam, 2009). I maintained an audit trail starting with the research proposal stage.

By providing rich descriptions of the setting, participants, and relationships in my study as a final way to ensure the validity of this study. A detailed description of the setting, procedures, and results provides a context for understanding the results of a study, enhancing the understanding of the author's interpretation (Ponterotto, 2006). Vivid detail enhances the credibility of the account, as well as enables the readers to make decisions about generalizability (Creswell & Maxwell, 2000).

External validity/transferability. The key to external validity is directly related to the internal validity of the study; there is no case for replication without internal validity (Guba & Lincoln, 1981). Merriam (2009) suggested that external validity assumes that the finding of one's study can be applied to other situations. Miles, Huberman, and Saldana (2014) considered the ability to transfer study results to other contexts when discussing external validity. It is important to return to one of the underpinnings of qualitative research, that of the researcher's wish to investigate a

phenomenon in depth, rather than the general truth of many, when considering external validity (Merriam, 2009). Lincoln and Guba (1985) considered the responsibility of the investigator to provide clear and sufficient data in the description to allow for transferability.

There are some accepted practices and procedures in the qualitative methodology to enhance external validity. The first is to use rich description to engage and emerge the readers within the study. I provided a detailed description of the setting and participants of the study, as well as a thorough description of the procedures used in data analysis and evidence that confirm the findings of the study (Merriam, 2009). A second strategy to increase external validity is the use of maximum variation in sampling, by recruiting from participants from all subject areas for certification to allow for a greater range of application of the findings. I was successful in recruiting participants who seeking certification in early childhood, elementary, and secondary education. Participants were both undergraduate and graduate students and at different levels of their teacher education program.

Researcher positionality. I approached this dissertation study with 25 years of experience as a college clinical instructor, and a director of the university's Child Development laboratory schools for 30 years. I earned a Bachelor's of Science degree in Early Childhood Education and a Master's of Arts degree in Child Development.

I viewed this research through a lens that sees reflection as a way to learn about one's self. I believed this to be true with pre-service teachers. I have used self-video as a tool for self-reflection in the early childhood courses I teach, and believe that self-video analysis is an effective tool in pre-service teacher learning. My experience with the use

of self-video analysis, and assumptions about its effectiveness, can be viewed as a bias in this study. I designed the study with this possible bias in mind. First, I was not the instructor-of-record to any of the participants. I have never taught either practicum course in which the participants were enrolled. Next, I recruited participants for the study from all areas of teacher certification. Participants were seeking Elementary, Early Childhood, and Secondary teacher certification, respectively. My previous experiences with using self-video analysis have been limited to those seeking early childhood education certification, exclusively, in the courses I teach. This study examined the use of self-video analysis in an expanded setting. Participants had varied levels of use of self-video analysis related to the practicum (1 or 2) and certification area. Finally, I ensured the separation of participant assessment by the clinical educators and participation in the research study, by scheduling the focus group interview after grades were assigned for the practicum 1 and practicum 2 courses for the fall semester, 2017. I did not divulge the names of participants to the clinical educators.

Limitations. As with any study, I recognized several limitations to my research. Firstly, it focused solely on the use of pre-service teachers from a Midwestern public university as my subjects, who were enrolled during the period of August 2017-December 2017. Participants were chosen from those who volunteered to participate in the study; thus, this representation was not as diverse in ethnicity as the general population. The structure of the study relied upon the self-reporting of the participants during the interview. My research embraces the constructivist-interpretivist paradigm, and I chose the theory of reflection as the theoretical framework to frame my study. Other theoretical frameworks might have provided different interpretations and

conclusions. Finally, there is the risk of researcher bias, due to my faculty status at the Midwestern University in the U.S., and due to my own previous, positive experiences with using self-video analysis as a tool to learn from one's own teaching. The use of two interviews with each participant may have helped me to hear and understand the participants' voices without projecting my own bias. I also strived to keep the participants involved in the process through member checking to ensure I captured their voice accurately. Despite these limitations, the study had the potential to provide increased understanding of the effect of using self-video records in pre-service teachers' self-reflection.

Chapter 4: Results

The purpose of this study was to explore pre-service teachers' use of self-video analysis as a tool to learn from their own practice. "Practice," in this dissertation refers to practice teaching completed in pre-service teachers' Practicum 1 and Practicum 2 courses. I examined the following research questions:

1. How does examining one's own teaching performance on video affect self-reflection?
2. When pre-service teachers engage in self-reflective video analysis:
    a. What teaching practices do they notice?
    b. How do they identify needed change to teaching practices?

Four main categories emerged from the data; while three were instrumental in answering my research questions. The first category, "Reflection," examined pre-service teachers' reflection practices with and without self-video. The second category, "Noticed Behaviors," identified the self, student and teaching behaviors that the pre-service teachers noticed during their self-video analysis. In the third category, "Perceived Change of Practice," pre-service teachers identified recognized teaching behavior changes attributed to the use of self-video analysis. The final category, "Videotaping Process," highlighted the process that the pre-service teachers experienced in creating self-video records. Whereas this category provided interesting data (as documented in Appendix H), it was not related to the research questions. Therefore, the information was eliminated from the results. Thus, this chapter offers the results that directly related to my research questions.

Self-Video Requirement

The use of self-video analysis was a requirement of both the practicum courses in which the participants were enrolled, and the students enrolled in the course were issued an iPad for recording purposes and were trained in a procedure called "Inquiry into my Practice (IMP)" developed by faculty in the COE of the Midwestern University. This highly prescribed IMP process (Appendix I) was applied when using self-video to examine one's own teaching practice to fulfill both Practicum course requirements. Further, the IMP process required a pre-brief and debrief with a thinking partner, completed before and after the lesson. In the IMP pre-brief, pre-service teachers are asked to "Explore" the content and pedagogy of the lesson they plan to teach; to "Envision" how the lesson will unfold; and to consider when the lesson is "Enacted" what they want the learners to know, and how they will know this is accomplished. This is done with a thinking partner and is videotaped. The IMP debrief is completed after the pre-service teacher has taught the planned lesson. Pre-service teachers, again with a teaching partner, "Explore" if they included the planned content and pedagogy in the lesson and whether the learners accomplished what was planned after the lesson was "Enacted." This debrief is also videotaped. The IMP process was completed with a partner and all parts of the IMP process were video recorded to fulfill the assignment guidelines. Video records were uploaded to the Teaching Channel for self-viewing and reflection. Pre-service teachers were asked to record and reflect on a minimum of two lessons; however, the iPad was available to them throughout the entire semester to record themselves as often as they chose. As the researcher, I chose to adhere to the practicum course requirements and use of the IMP process for self-video analysis and reflection,

rather than require my own protocol of similar procedures. My reason being it would not be any add to their semester workload and could provide insight into the current reflection process procedures utilized by the COE.

My first research question explored the effect of self-video on pre-service teachers' self-reflection process. In order to answer this question, the semi-structured interview protocols included these questions to help understand the impact of video on the reflection process.

1. How many times did you watch each videotaped lesson?
2. How did the videotaping affect your self-reflection process?
3. How do you assess your teaching in absence of a video record?

Category 1: Reflection

This category addressed the first research question: How does examining one's own teaching performance on video affect self- reflection? Data emerged and was grouped into three subcategories: value of self-video records, reflection process with self- video and reflection process in absence of self-video. This category, the subcategories, and properties are illustrated in Figure 1 below, and further explained next.

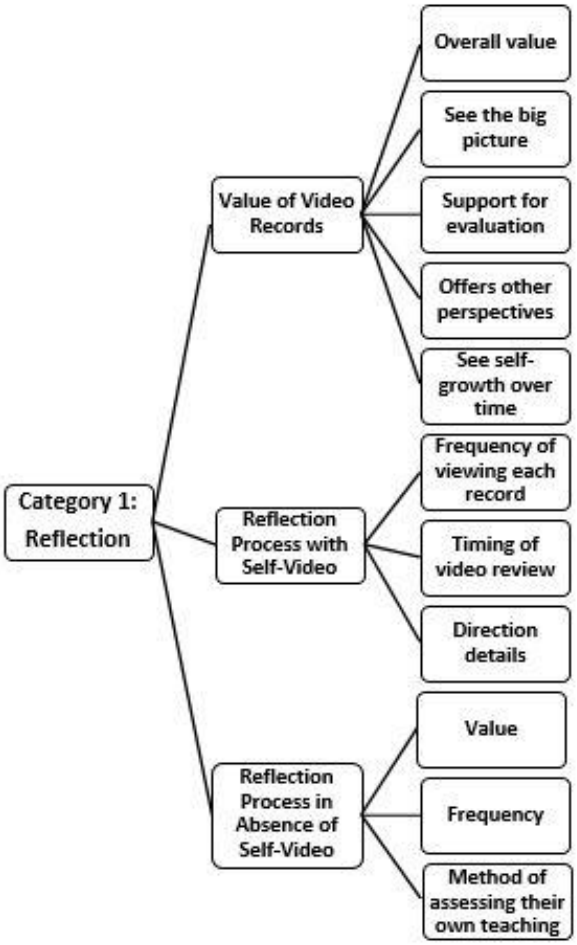

Figure 1: Category 1-Reflection

Subcategory 1: Value of video records. This subcategory included six properties that participants described in their interviews. The topics of each property are discussed next.

Overall value (first property). The useful benefits of video records were acknowledged by most, but not by all, of the participants. J discussed that it was valuable to be able to look at his own performance (J1: 94). M noted that she liked to self-reflect, and that video records helped her teaching (M1: 74-75). DW was a participant who

struggled with using self-video in reflection. He said, "I can see it as helpful, but at the same time not really" (DW1: 161-162) and expanded on his thoughts later in the interview by saying:

> Just because it might not be as helpful to me, doesn't mean it isn't going to be helpful for anybody. Um, I do see merits, you know, despite, again despite not necessarily thinking it's the most beneficial thing for myself, I see merits in doing it (DW1: 200-204).

KW stated that video records did not help as much as the experience with teaching (KW2: 67). Other participants expressed noticing a change in the value of self-video records in reflection, as they progressed in their practicum experience. S talked about not relying upon video records as much in Practicum 2than she did in Practicum 1. She remarked that she relied more upon the collaborative relationships she established with her cooperating teacher and peers assigned to the same school (S2: 61-64).

Seeing the big picture (second property). In seeing the big picture, participants expressed this as the most resounding. They saw this as difficult to do on an everyday basis, and saw video records extremely valuable to help them observe what they missed. J's comment provided an ideal description.

> Um, well you get a chance sometimes when you are doing the lesson you don't get a chance always to observe what um all the children are doing, whether they are focusing. You are in the moment, you don't have and eye that can carefully exam 22 children all at the same time. I mean you try to have an eye on the whole class. It's not like there are kids that disappear out of your view but you don't

> always get a chance to focus on really carefully if they are really engaged or not. But when you watch the video you get a chance to watch all the kids and see which ones are really wandering off" (J2: 93-100)

S also expressed this same impact when she said:

> There are so many things that happen especially having 25 students in the first grade that happen without me even knowing that they happened while I was teaching so I think I like the aspect of being able to see who was actually on task and who was you not while I was teaching (S1: 65-66).

Others stated many times that it is much easier to watch a video, because you are not missing any details. Video provided a clearer, unbiased picture to what really happened during a teaching episode.

Support for evaluation (third property). M mentioned that it was more beneficial to have the videos to self-reflect because she knew it provided the facts (M1: 90-93). KA described the video record like this: "And the video is just concrete. It's just there. It doesn't have any opinions attached to it. It's unbiased. It's just there" (KA2: 121-122). These comments elude to the notion of trust in feedback, and concrete video records elevated trust levels for some participants. Tripp and Rich (2012) found similar results. Teachers in their study felt they sometimes knew they should change but were more likely to do so when they saw it with their own eyes, which created a higher level of trust that brought about change.

Participants also felt that coupling the self-video record with written evaluation from clinical educators was beneficial to their self-reflection process. D discussed being

able to watch himself while reviewing the written evaluation from his supervisor. This allowed him to "see if I agreed with her" (D1: 124-16). M expressed a similar view in that she was able to reflect on what her clinical educator said in the written evaluation, and then she looked at the video record to help her understand (M1: 95-96). S said:

> I do find that it's more beneficial when there is an observer there um because I can kind of compare their notes and kind of go back and see in the video where that happened or where that didn't happen and other examples of what they are talking about. Um so, I do find the pairing of those two things beneficial (S1: 97-100).

Offers other perspectives (fourth property). K and S discussed how video records allowed them to see their teaching from the eyes of others and their students (K1: 132-133; S2: 50-58). Dye (2007) suggested this detached view is a benefit, which allowed pre-service teachers to reorganize their own representation of their performance.

See growth over time (fifth property). Participants who invested in the self-reflection process discussed the progression of their teaching, similar to findings by Tripp and Rich (2012), who found that repeated video analysis allowed teachers to see their progress in teaching. K remarked that it helped her see how she changed from point to point (K1: 153-156). Video analysis allows pre-service teachers to focus on specific teaching behaviors if they choose to or are directed to do so. Tripp's and Rich's (2012) study asked teachers to set two or three goals to focus on during video review. Participants cited the ability to narrow the focus of their reflection as a reason for change in their teaching behavior. S set goals for improvement in classroom management during her Practicum 2 experience, and was able to see this in her video records. S said,

> Um I definitely like to see the progression of my teaching. Um one of the things that I really noticed is like behavior management. That's something that I like to look at a lot because I think that's an area where I struggled definitely at the beginning coming into student teaching. So I was able to pick out when I was using verbal redirection vs non-verbal redirection and those are two things like using verbal and non-verbal together are something I really worked on and was able to see you know as I progressed in my teaching during student teaching (S2: 30-35).

The *Map My Journey* written reflection, submitted as a final requirement of the Practicum courses, corroborated the property of seeing growth over time as well. M recognized not only growth in her teaching abilities, but growth in her reflection abilities as well. She said,

> Between my first IMP and my last IMP, I have grown in reflecting. I can recognize what went well and what did not; what pedagogies I would use again for specific learners and what I would change; what activities worked well for my students and what activities I may drop for next time; etc. (62-65)

This ability to see self-growth appeared to motivate many of the participants. The concreteness of the video records provided positive reinforcement of their teaching episodes and evidence of participants' perception of success in teaching.

Participants found overall value in self-video analysis. Most commented that video records allowed them to view the many missed events that happen during a lesson.

A positive outcome of having a permanent record of their teaching is the ability to see their perceived teaching growth over time.

Subcategory 2: Reflection process with self-video. Participants discussed the process they followed to review their own video records. The frequency of viewing, timing of review, and direction details are properties that emerged in this subcategory.

Frequency (first property). I asked participants, in both interviews, the number of times they reviewed their self-video records. Some of the participants reviewed each video record as many as three times while others did not review them at all. Most watched their video records two times (KA 1:99; D1: 111-113; K1: 103-105). The focus-group interview with the clinical educators confirmed that the requirements for viewing and commenting on self-video records varied among the assigned educators. Each clinical educator had different deadlines and expectations for their students to view the mandated video-taped lessons. KG commented that she doubted that students videotaped more than the mandated amount of lessons (FG: 65), and EH commented that she required five video comments per video (FG: 92).

Timing of review (second property). This property considered the amount of time that occurred between creating the video record, and watching it. Constraints, such as video upload speed, other assignments, and work commitments affected the timing of the video reviewing. J noted that he uploaded his video the same night, and completed his commenting about the video at the same time, because he liked to get it done right away (J2: 135-137). R commented that other assignment deadlines affected her viewing time (R1: 150-53), and S commented that slow uploading speed prevented her from viewing her videos as soon as she would have liked (S1: 88-89). In contrast, K was

purposeful in her delay of viewing her self-video to create a more clinical rather than personal setting. She said,

> Um, sometimes just hearing every little thing and re-watching it after a couple weeks because I usually watch it right away you know at the end of the day or that night but watching it a couple weeks later I think it makes it easier to reflect on it because when I watch it that day if it went really bad than all I see is all the things that went wrong. Or if it went what I thought was really good all I see was this was the best video ever. But then while I am detached from it, oh we could have worked on that. It becomes more clinical than personal (K2: 115-120).

Direction detail (third property). This last property included a dimension of how prescribed the process of reflection was for the participants. As noted earlier, each participant was required to view a minimum of two self-video records as an assignment in the course. The participants were directed to follow the IMP process in these two recording episodes. Beyond these guidelines, participants were not given any other specific guidelines for their self-reflection.

Most participants expressed a self-directed method to reviewing their own video records. Several did not participate in any type of reflection process, including the course- prescribed IMP process. R described her self-directed review process like this:

> Um I would say in the first viewing is like when let me reacquaint myself what is going on in the lesson. It has been a few days since I enacted it. The second time is, all right, let me start nitpicking at these details. And the third time is let me

> really clarify what happened in this specific moment and so just picking out those little items. (R1: 111-114)

M described the review process as this:

> Um, I probably watched each lesson twice. I wanted to go thru the first time to just get a general gist and the second time is really when I went through and like marked or like commented or time stamped or whatever like that (M1: 77-79).

Interestingly, S was self-directed to focus on an area of improvement throughout the semester. She discussed her goal to increase positive narration to decrease negative behaviors, which she watched for during her video review (S1: 110-113). Others reviewed their video records with spouses or family members. KA remarked that she really liked having the prescribed IMP process (KA1: 160).

The process, timing, and frequency of reviewing self-video records varied among the participants. Each described a process that worked for him or her. The permanency of the video records allowed for these differences.

Subcategory 3: Reflection process in absence of self-video. The final subcategory results from asking the participants how they assessed their teaching in absence of having a self-video record. I included this question, because I wanted to understand the participants' use of reflection to assess their own teaching without a video requirement. The properties of value, frequency, and methods emerged in the data. Most of the participants expressed a moderate degree of value of reflection in absence of video. However, the frequency with which they engaged in reflection varied, as did the methods they used to assess their own teaching.

Value (first property). Several of the participants valued reflection as a tool for self-learning in absence of video. R said, "Yeah I think that has been the most like resounding component of my education…" (R: 95). K expressed that teaching something without reflecting upon the lesson outcome does not lead to change (K1: 158-163). KA expressed a similar thought, "Okay, I think self-reflection is definitely a good tool to have because if we don't think about what happened and why it happens then nothings every going to change" (KA1: 89-90).

Frequency (second property). L expressed her frustration with the frequency of her self-reflection. She said,

> Well I feel like, to be very honest, sadly this semester has been so chaotic that it is hard when you are not asked to reflect on it. There is literally just I don't, I don't feel like I have had the time to do that (L2: 66-68).

D, who sought certification in secondary education, expressed that he reflected on what he was doing a lot, especially after the first time he had taught a lesson, but not in a formal manner (DW1: 128-129; 160).

Methods of assessing their own teaching (third property). The methods that participants used to assess their own teaching varied from the use of self-assessment to the use of student assessments and others' feedback. J discussed informally reviewing his lesson plan after teaching, to determine if the objectives were met. He commented that he made a mental note if he checked for understanding during his teaching and he considered if the children got what they needed during the lesson (J2: 49-53). L and M

used written reflection in the form of notes while teaching the lesson and used a notebook to record thoughts after a lesson (M2: 44-47; L2: 81).

Yet others viewed student assessments as the main indicator of their own teaching success. KA said, "Usually the way I asses it then is usually by the exit slips or whatever the written activity was that went along with it" (KA 2: 55), and KW said, "I would say it's more the assessments I give, like the informal, like just gauging what they learned and what they understand so if they're not getting it then I know I did something wrong (KW2: 86-87).

Several participants used feedback from others to assess their own teaching. They mentioned that their cooperating teachers, clinical instructors, student colleagues, and mentors were consulted for feedback. S said,

> Um, a lot of it is collaboration with people in the class. So my cooperating teacher was often in the classroom while I was teaching so we would kind of debrief after um sometimes also like planning lessons, like after you teach a lesson talking about it and thinking about moving forward for the next lesson. We talked about that a lot with my cooperating teacher. Also with other student teachers at my school We were working together a lot as well as talking about how our lessons went, things we've tried in the classroom, bouncing ideas off of each other (S2: 42-47)

Clinical Educators who participated in the focus group interview acknowledged the importance of other feedback, as well. When asked if there were other components of the practicum course that aides in self-reflection, several mentioned the debriefing

conversations that each had with the pre-service teacher after a teaching episode. KF said, “That conversation I feel has always been the most productive piece of the process, you know where I watch them in a situation and then we talk about it” (146-147).

For most participants, reflection in absence of self-video happened less often than the participants intended. Reflection procedures more often included feedback from peers, colleagues, and the clinical educators. Participants noted that student assessment of understanding after teaching a lesson was a primary way to assess their teaching.

Conclusion

The category of Reflection and the three subcategories provided data to answer my first research question. Most participants expressed value of self-video records in their self-reflection process. A video record allows participants to see the big picture, the student actions and level of engagement they often missed, while in the teaching moment. Video records provide a different perspective, and offer a concrete, unbiased view of their teaching, as well as support for evaluation. Lastly, video records allowed participants to see their own growth over time.

Category 2: Noticed Behaviors.

This category addressed the first part of the second research question: When pre-service teachers engage in self-reflective video analysis: a) what teaching practices do they notice? Data emerged and was grouped into three subcategories: self -image, student behaviors, and teaching behaviors. This category, the subcategories, and properties are illustrated in Figure 2 below, and further explained next.

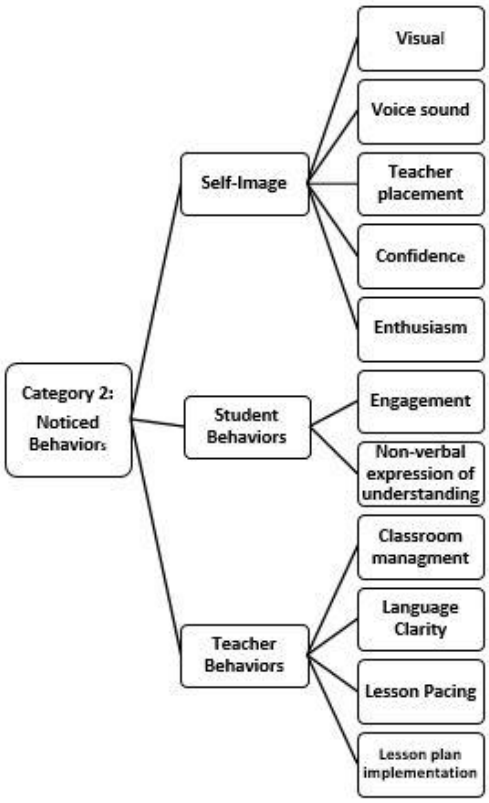

Figure 2: Category 2-Noticed Behaviors

Subcategory 1: Self-Image. In the subcategory of self-image, participants noticed their visual appearance, voice sound, placement and movement in the classroom, confidence level, and level of enthusiasm. This category represents the superficial level of reflection observed in many pre-service teachers (Calandra, Brantley-Dias, Lee & Fox, 2009). Participants talked about facial expressions, appearance, voice sound and speed, and gestures and mannerisms.

Visual (first property). K mentioned in both interviews that she noticed a lack of smiling (K1:108; K2: 81). DW stated, "…I am apparently a very awkward person when I am standing in front of the classroom, um I tend to gesture a lot with one arm. The other arm just stands there by my side" (DW2: 66-67). K also recognized her need to re-watch

a video after the initial appearance focus. She said, “I know the first thing I happen to notice the appearance first. I kind of have to re-watch it because at first I am like I shouldn’t have worn that dress” (K2: 96-97).

Voice sound (second property). Several participants noticed voice sound, both pleasing and not pleasing. D said he did not like to watch his video, because his voice really sounded like that (D1:77). SK commented, “Yeah, my voice does sound weird, and that’s one thing I noticed,” and “ Um I noticed I wanted to articulate more after watching the video, maybe varying my pitch and tone more” (SK1: 91-92 and Sk2: 97). K talked about voice level needing to be louder (K1-114-115), and L was mostly pleased with voice sound (L1: 113).

Teacher placement (third property). The participants who were seeking secondary education certification most often mentioned teacher placement. All of the male participants noticed the amount of moving around in the classroom as well. B described himself as a traditional teacher, standing up at the board (B2: 53-54). DW noticed that he was pretty stationary which he attributes to the use of power point technology and a computer in the front of the classroom (DW: 188-190). L, however, said, “I think I am surprised at how much I move around” (L1: 82). The clinical educator who supervised the secondary education students eluded that teaching content affects movement, as this is done mostly through direct instruction delivered by talking to everyone in front of the room (FG: 195). Another clinical educator said, “I think when they look at how little that they walk around the room, then they start doing it. That’s what I have noticed” (FG: 186-187).

Confidence (fourth property). Confidence level in their teaching was also a property of the self-image subcategory with the dimension ranging from high to low. KA noted she was not nervous in front of the classroom and felt comfortable (KA 1: 37). Some participants recognized progress in this area. KW said, "I notice some progression after like seeing, watching my videos from the very beginning to now like I'm a little bit more comfortable in front of the class" (KW1:86-87). Others linked confidence level to the content of the lesson. SK noted a fair confidence level depending upon the lesson and material (SK1: 92). In addition, M remarked that she noticed she was more confident teaching than she thought she was (M2: 68).

Written reflections confirmed participants noticing their confidence level, as well. J said, "I could see that I was feeling much more comfortable and in control of the lesson than what I could see from my earlier lessons" (38-39). KW said, "Now that I am in the classroom more consistently, I can tell that I feel much more comfortable teaching" (6-7). Lastly, DW declared, "I started out nervous and felt incredibly unprepared. As the end of the semester approaches, I feel that I have been able to become a more confident, comfortable, and overall better prepared teacher" (37-39).

Enthusiasm (fifth property). Participants spoke of both low and high levels while teaching. L said, "I am very animated and you know that is something you don't notice about yourself because you are not looking into a mirror" (L1: 83-84). M and SK recognized the connection between enthusiasm level and student engagement. M remarked that once she got going her students got into it (M2: 72). SK said, "Just being more enthusiastic to the kids maybe could have helped" (SK1: 92).

Results in the self-image subcategory are similar to other studies on the use of video for self-analysis in teacher education. Fuller and Manning (1973) found that pre-service teacher viewing usually resulted in more focus on themselves than their students.

Subcategory 2: Student Behaviors. Participants noticed student engagement and non-verbal expressions of student understanding during their self-video analysis. The idea of capturing missed events fits here, as participants referred to the many things that they did not see, or missed, while they were teaching the lesson. Clinical educators commented on these missed events as well. EH said, "Mine will make comments like um I didn't know the kids were talking in the back of the room, or I didn't know this student needed help" (111-112).

Engagement (first property). Several participants commented on the student's level of engagement during their teaching episodes. S commented, "I like the aspect of being able to see who was actually on task and who was you know not while I was teaching" (S1: 67-68). J said …"I can see where the kids may not have been interested there or you know I didn't approach that well" (J1: 97-98). R remarked that when she rambled on the children lost focus (R1: 129-130). DW, a participant in secondary education remarked that he was able to see the students in the back of the room helping each other when it was assumed they would be not engaged (DW2: 114-115). Zhang et al., (2011) found similar results in which science education teachers participating in a professional development study identified video helping them to notice on-task and off-task behaviors.

Non-verbal expressions of understanding (second property). The second property under the student behavior subcategory is non-verbal expressions of

understanding. Several participants remarked the noticing of non-verbal behaviors that indicated a level of understanding. R said,

> I can see that my kids are all you know, their bodies are all turned towards the speaker so I can really tell they are tuned. Um, I mean a lot of it is just how expressive they are. You can see when a light bulb goes off (R1: 141, R2: 79-80).

KA remarked that video allows you to see when you have lost a student because you do not always catch every single student reaction (KA1: 119-121). S also expressed that video shows connections and the lack of understanding, which is helpful for planning and assessment (S1: 105-106).

Participants noticed student engagement and understanding less frequently than they noticed their own teaching behaviors. Significant repeated viewing of a teaching episode might increase the depth of this subcategory as this would allow the focus to shift from oneself to the students.

Subcategory 3: Teaching behaviors. In the third subcategory of Noticed behaviors, participants discussed the teaching behaviors they noticed in their self-video. Properties of this subcategory included classroom management, lesson plan implementation, lesson pacing, and language clarity.

Classroom management (first property). As in other studies (Bayat, 2010; Rosaen et al., 2008; Sabers et al., 1991; Star & Strickland, 2008) several participants noticed successful and unsuccessful classroom management behaviors. M said, "I noticed a lot of my interactions with my students, and how I, like tried to positively reinforce good behaviors. I've also noticed certain types of strategies I used…" (M1:

82-84). M revisited classroom management in her second interview, remarking that she only used a couple techniques, and identified this as an area for improvement (M2: 32-33). L recognized that, although the students were engaged during a lesson, she did not give enough positive reinforcement (L1: 85-88). R noticed her praising of the children, focusing on the positive rather than the negative (R2: 37).

Language clarity (second property). Language clarity was another dimension of this subcategory. K's remark is compelling:

> So sometimes I just say a bunch of things and I didn't make any sense when I am watching the video and then but at the time it made sense in my head. I guess I connected a whole bunch of dots that really weren't there. And so it helps me be more intentional about how clear I am giving directions because sometimes it's just not good directions (K2: 84-87).

Articulation and rate of speaking were also recognized. SK recognized that he talked too fast, and did not articulate well (SK2: 33, while L recognized, "I am very articulate, I speak really clear and concise" (L2: 99-100). Data from the clinical educator focus group interview supports pre-service-teachers noticing both tone and speed (FG: 117-119). Finally, one candidate noticed the clear use of content language several times. B discussed his choice of terminology he used while teaching a math lesson. He identified using a confusing term, rather than the appropriate content language (B2: 73-75).

Lesson pacing (third property). In this property, participants identified struggles with time management of teaching a lesson. KA expressed in both interviews about her views regarding lesson pacing, and working with the cooperating teacher throughout the semester to improve in lesson pacing. KA said, "Sometimes you can see it oh, it felt like

a split second when you were doing it, but sometimes it is actually a little longer than you thought and it causes time management problems…" (KA1: 94-95). L was surprised with lesson plan deviation:

> I just think it really makes you realize things you miss like in your lesson plan. For instance, you write something down and then you completely forget it. Reviewing you are watching that progression and Oh I left out an entire component of this thing I was trying to convey so that is extremely helpful…I just totally left it out cause you get side tracked or you get nervous or whatever (L1: 101-107).

Lesson plan implementation (fourth property). Secondary education students commented that video allows you to see the few points that you might have missed during a lecture (SK1: 102-103). L stated,

> I just think it really makes you realize things you miss like in your lesson plan. For instance, you write something down and then you completely forget it. Reviewing, you are watching that progression and oh, I left out an entire component of this thing I was trying to convey, so that is extremely helpful. I just totally left it out cause you get side tracked, or you get nervous or whatever (L1: 101-107). Noticing these negative aspects of their teaching resolved most participants to make changes in further teaching, similar to findings by Snoeyink (2010).

Participants noticed expected teaching behaviors in this subcategory. Successful and not successful classroom management procedures often stand out in video-records.

Participants also noticed practices that are emphasized in the Practicum course curriculum.

Conclusion

The category of Noticed Behaviors and the three subcategories provided data to answer my second research question. Participants noticed their own self-image, and student and teacher behaviors. Visual, voice, placement, and levels of confidence and enthusiasm were noted as they discussed their self-image on the video records. Participants identified student engagement and non-verbal expressions of student understanding while viewing their video records. Finally, participants noticed their classroom management, language clarity, lesson pacing, and lesson plan, implementation behaviors as they analyzed their own video records.

Category 3: Perceived Change of Practice

This category addressed the second part of the second research question, "When pre-service teachers engage in self-reflective video analysis; b) how do they identify needed change to teaching practices?" The participants were asked three direct questions during the two semi-structured interviews to probe for an answer.

1. Have you implemented anything you have learned after viewing self- video?
2. What does the video tell you about your teaching?
3. How do you use evidence in your video to interpret your classroom teaching?

Data emerged, and was grouped into two subcategories: engagement and teaching behaviors. This category, the subcategories, and properties are illustrated in Figure 3 below and further explained next.

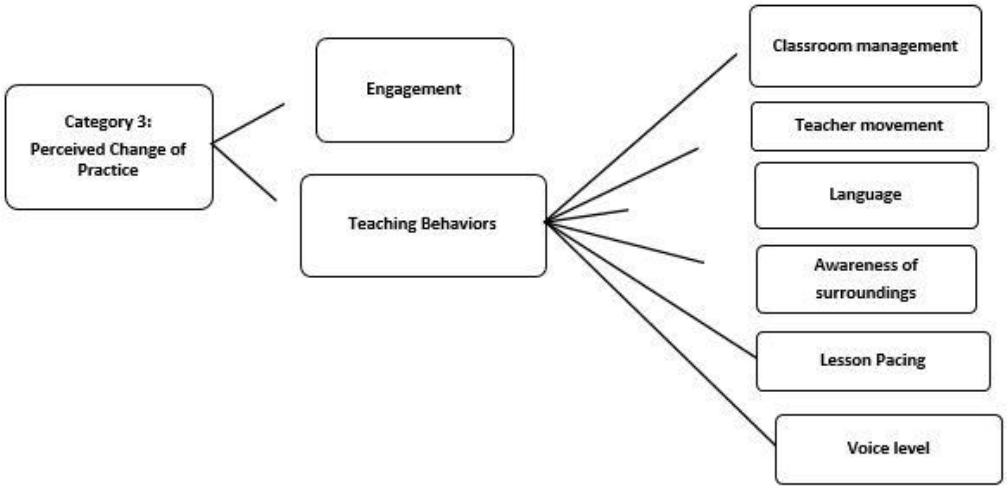

Figure 3: Category 3- Perceived Change in Behavior

Subcategory 1: Engagement. Participants expressed their perceived notion of improvement in their engagement with students during their interviews and in most instances, interview data was confirmed by written reflection data. J articulated improvement when he said, "Engagement getting better, getting being a little more catchy at the beginning of the lesson to try to bring the students to be engaged. To get them interested in what you are doing after the first lesson I needed improvement on that to I had to figure out ways to be" (J1: 85-90). SK expressed a change in his practice that improved engagement when he commented about using student lives in his examples to make the students more connected. He had a softball player in his class so he used an example about a softball (SK1: 108-112). He wrote in his written reflection, "I believe that I grew by having more effective lessons where students are engaged." KW discussed

her level of interaction with the children in the context of her level of comfort in teaching. She said,

> I would say I am more interactive with the students now. Like I can I have more control over what they are like engaged with and what they are not engaged with as opposed as before I was trying to just get through the lesson and just get it over with whereas now I am actually trying to teach (KW1: 90-93).

This perception of increased engagement with students was mentioned by participants who expressed not being successful in teaching in the first interview. Both J and SK struggled with engagement thus they focused on improving in this area. Experience in teaching might also be attributed to this increase.

Subcategory 2: Teaching behaviors. Participants perceived that viewing self-videos attributed to changes in teaching behaviors. Properties in this subcategory included classroom management, teacher movement, and language, awareness of their surroundings, lesson pacing, and voice level.

Classroom management (first property). Several participants discussed perceived improvement in transitions and classroom management. J said,

> I think little more giving it a little more structure at the beginning especially with transitions. Cause during the lessons you have to transition them from whole group to individual group and I saw a couple areas I was able to help those transitions go a little smoother so that less time was wasted, less confusion to the students so they could stay more focused on what they were doing (J2: 37-40)

KA said,

> One thing I have changed is giving students a time limit, at least third grade otherwise they will take their own sweet time chatting with friends going from transitioning so from direct instruction to small group or independent work like counting down so say like from five or something lets them know oh hey we need to get moving fast otherwise the transition would take a couple minutes and you really don't have that time built in to the lesson to do that (KA1: 125-129).

J and L both commented on growth in classroom management. L provided a more general comment when she said, "I was looking at a video made in the spring of last year and then a video I made just a month ago and there were significant changes in my approach to curriculum and classroom management. (L2: 31-33). J, however, perceived a specific change in practice. He said:

> Yeah, I mean, I noticed like one of the earlier videos I wasn't using enough, I don't know what you would call them, like authoritative statements, "class class", one two three, eyes on me" with strong conviction. It was more earlier on it was like guys be quiet up there instead of getting the whole class so I noticed I needed to do that more because the class sometimes gets too chatty and doesn't keep the chatting down. When you use stronger statements I noticed the class gets a little more quiet and focused (J2: 82-87).

KW reported classroom management changes in relation to her own feelings. She notes in the beginning of the practicum course that she was trying to get through the lesson, whereas now, her management focus is to help the children stay focused.

Finally, classroom management was identified as both a struggle and success in many of the participants' written reflection. Participants noted more control, better transitions, use of positive narration, and increasing engagement as reasons for success. One participant, K remarked that her classroom management was a continued struggle, and an area on which she focused all semester. She also identified a different view of ownership for behavior struggles, noting that, in the beginning she blamed the students, but now realized she needed to own the problem.

Teacher movement (second property). Several properties in this subcategory were linked to physical characteristics of the participants. D recognized more movement in his placement when he taught in a later self-video. He said, "I moved around. I was far more engaging. Because I find, like, in that first lesson, I was standing in the same spot the whole time, and I wouldn't recommend that to any teacher ever." (D2: 181-183). DW described a change in his movement while he taught. He noticed himself walking in a figure 8 pattern more after watching video of him standing in the same spot near the computer during class lecture (DW: 192-193).

Language (third property). Clarity, word choice, and use of content language were noted behavior changes by participants. R strongly said, "I definitely pay more attention to my language after watching those videos, I mean, I always try and do that but especially with kindergarteners it is so important so I became really intentional with the words that I use" (R1: 122-123). K commented that self-video has helped her become intentional in giving clear directions, an area she recognized as a struggle. M discussed how self-video helped her to see how she said things in a kid friendly way and caused her to use content language more often when explaining something (M2: 107-109). *Map My*

Journey written reflections corroborated the perceived change in language clarity. J identified this as an improvement, noting he provided better clarity to the objectives and steps to the assignments at the end of the semester.

Awareness of surroundings (fourth property). Several participants noted an increase in the global view of their classroom, often referred to as having eyes in the back of your head. R said, "So I'm just really keeping an eye on the whole room now and not just concentrating so hard on you know did I meet my time goal?" (R2: 57-59). KA discussed learning to use a system to check on student understanding while teaching. She said,

> It also made me aware when I am teaching that I need to try to make sure I am looking constantly scanning everybody, because uh, you don't know what they are doing all the time if you are just looking in one general area. I have noticed that not all the students are always paying attention too. I've learned to start using a system that I have seen other teachers use on Teaching Channel. Like thumbs up now, and the middle, to see how they are feeling about the subject, and sometimes that is really helpful (KA: 131-136).

Lesson pacing (fifth property). Similarly, some participants talked about viewing their self-video to help with lesson pacing. S in particular expressed her lack of experience with lesson pacing coming from an early childhood background, where curriculum and teaching is often child led. S said,

> Um, one thing is pacing of the lessons. Um coming from a background in early childhood I'm used to having the pacing rely more on the students whereas in

> Elementary the pacing needs to be more specific, more um guided and it was a little bit faster. So that's one thing I struggled with as well and was able to watch back at my videos and this part was a little slow and the kids weren't as engaged versus you know okay now I'm starting to get the pacing, we're moving along at a good speed where the kids are understanding but we're also not moving too slow (S2: 70-76).

R described her use of a timer after noticing that her students were losing focus, as she rambled on (R1: 130), and KA described trying various methods of distributing materials during the semester to keep the lesson on pace (KA2: 49-59). K commented on an increase in organizational skills when she said,

> And I also think that I guess like more organized. Things seem more organized now. Like before you were reading from a script and as you progress it's just more you doing it because you know how to do it not because you are doing A, B and C (K1: 138-140).

Written reflection confirmed these perceived changes in lesson organization and implementation. Several participants expressed an increased ability to be flexible while teaching. S noted learning to be flexible in her lessons was one of her biggest accomplishments. R wrote:

> What I mean to say is that when I began teaching lessons, my focus and attention was restricted to the script I had planned. In moments of teaching, I dedicated so much of my thinking to the content that I struggled to make adjustments or deviate from my plan in order to differentiate properly and meet all students'

needs. I was so worried about conveying the content that I neglected the very teaching behaviors that make a classroom flexible.

Voice level (sixth property). Participants commented on changing characteristics of their voice. D discussed a change in his voice level after viewing his first video in which described his voice level as booming loud to toning it down in subsequent videos (D1: 153-156). K noticed her voice level was too low in her first teaching episodes but it progressed to a louder level in later teaching episodes (K1: 153-156).

Participants perceived a change in their own teaching behaviors at the same superficial level they noticed the behaviors. This might be attributed to the fact that these self- behaviors are behaviors they control and change unlike student behaviors in which they are still learning to understand and influence.

Conclusion

The category of Perceived Change of Practice and the three subcategories provided data to answer my second research question. Participants perceived an increase in the engagement level with their students, and changes in their teaching behaviors. More specifically, participants expressed perceived changes in classroom management, teacher movement and language, awareness of their surroundings, lesson pacing, and voice level.

Data emerged in four categories during the microanalysis of individual interview transcripts and was supported by data from the focus group interview transcript and document analysis of participant written reflections. Three categories informed the research questions of this study.

Chapter 5: Discussion

I sought to explore pre-service teachers' use of self-video analysis as a tool to learn from their own practice in this study. "Practice", referred to in this dissertation, refers to practice teaching completed in Practicum 1 and Practicum 2 courses. At a Midwestern University during fall semester of 2017, I examined twelve participants' use of self-video records in self-reflection. Seven participants were female, and five were male. Four participants were graduate students obtaining teacher certification, and eight participants were undergraduate students enrolled in the bachelor's degree in education program. Three participants were seeking early childhood certification; two participants were seeking secondary certification; and seven participants were seeking elementary certification. Practicum placements were assigned to the participants in suburban, rural, and urban districts that varied in size, socio-economic levels, and race/ethnicity factors.

In this final chapter, I revisited my research questions and relative findings to discuss implications for the practice of using self-video analysis in educator preparation programs. Finally, I will suggest the limitations and a further research agenda.

Research Questions

These research questions guided my study:

1. How does examining one's own teaching performance on video affect self-reflection?
2. When pre-service teachers engage in self-reflective video analysis:
    a. What teaching practices do they notice?
    b. How do they identify needed change to teaching practices?

These questions emanated from my interest in the efficacy of using video records to support self-reflection in the courses I teach, as well as in my practice of providing feedback to my students. Since 2010, I have added a framework and the use of videotaping to the curriculum and practice courses that I teach, in effort to improve pre-service teachers' self-reflection and feedback. As detailed in the introduction, a pilot study provided the opportunity to use self-video analysis with pre-service teachers in a more streamlined manner than what I had been using. The Teaching Channel partnership made storing and reflecting upon self-video records a much easier task for students. Completing my dissertation study on this topic seemed natural as my interest continued.

How does examining one's own teaching performance on video affect self-reflection?

As a teacher educator, I consider reflection as a bridge between knowledge and practice, and as such, this was the theoretical underpinnings of my study. Dewey (1933) believed that reflection is important to teacher development. Loughran (2002) reminded us that experience alone does not lead to learning; reflection on experience is essential to developing professional knowledge. In this study, I anticipated that self-video records could be a tool to promote productive, reflection-on-action (Davis, 2003; Schön, 1983). Schön (1983) described reflection-on-action as involving thinking back, and making decisions about changes one would make to one's own practice. Davis (2003) characterized productive reflection as thought that leads to knowledge integration of the multiple aspects of teaching, including the learner and learning, assessment, content matter, and instruction. In contrast, she characterized unproductive reflection as descriptive and not analytical. Ideas are listed, but are not connected logically to theory

or practice. Productive reflection generates alternatives, whereas unproductive reflection does not.

Previous studies report positive outcomes in using self-video analysis for teacher reflection with pre-service and practicing teachers (Ajayi, 2016; Borko et al., 2008; Rosaen et al., 2008; Zhang et al., 2011). This study had similar findings. Pre-service teachers in this study perceived that self-video analysis was beneficial in self-reflection, as it helped them to see the big picture of their teaching episodes; offered a different perspective than what they remembered; provided unbiased feedback and support for other evaluation procedures; and helped them to see the growth in their teaching skills.

Results give credence to the common phrase "teachers need eyes in the back of their heads." Most participants expressed the benefit of seeing the big picture when viewing their video records. Participants expressed having a narrow focus when teaching a lesson, related to focusing on a certain group of children or placement of the video camera. They also expressed being nervous about time management, meeting lesson objectives, and evaluation of their teaching. This use of video allowed the participants "to enter the world of the classroom without having to be in the position of teaching in-the-moment" (Sherin, 2004, p. 13). Some, but not all, participants commented on the ability to view each teaching episode multiple times to observe the elements of their teaching instruction they didn't remember or notice while in the teaching moment, similar to other study results (Tripp & Rich, 2012; Zhang, Lundberg, & Eberhardt, 2010). Schön (1987) considered the reflection-on-action, in which the pre-service teachers engaged, fundamental to the development of teacher expertise.

Participants also recognized the value of video in offering a different perspective, described, as "…you know the kids' point of view" (K1: 132-133). Gaining this new perspective is a finding similar to other studies on using video in teacher education (Rich & Hannafin, 2009; Sherin & van Es, 2002; Snoeyink, 2010; Tripp, 2009). Snoeyink (2010) reported that students recognized the incongruity between what they remembered and what they viewed in their teaching episodes. Participants in this study identified dissonance when they perceived a lesson had better outcomes than it actually did, as well as perceiving a lesson to be lacking in something, but the outcomes were better than anticipated. For some participants, the video records were evidence of truth. Participants felt it was useful to see themselves from a different vantage point (Dye, 2007), and often identified things they had missed while they were teaching or recalled from memory.

Another interesting finding of this research is participants stated that video records provided unbiased feedback, and support for evaluation from their cooperating teachers and clinical educators. Participants recognized having the ability to reconcile verbal and written feedback with their video records as a benefit and desire of the reflection process. Coffey (2014) found similar results in a case study of graduate students who identified the same ability to reconcile written comments on their teaching performance with video records as much more powerful than written feedback alone. McCullagh (2012) found in a case study that video records were a way to transform a personal experience into an exchangeable entity that was used for shared discussion between teacher education faculty and student. However, clinical educator participants in this study, who provided written feedback to the participants, did not recognize this same value of self-video records. Most stated that they had not considered using the video

records to corroborate the written feedback provided to the pre-service teachers, citing time constraints and scheduling difficulties as reasons; however, they felt it would be useful in their supervision.

Finally, participants recognized that self-video records captured their growth as beginning teachers. This formative nature of video-analysis afforded concrete proof to pre-service teachers that their teaching was improving (Tripp & Rich, 2012). Some participants in this study identified a teaching behavior they sought to improve during the course of the Practicum semester, and were able to view their progress. Multiple video records afforded the opportunity to see success, rather than just feeling the success. Participants expressed this positive affirmation was beneficial because they often felt underprepared and overwhelmed during the semester.

When pre-service teachers engage in self-reflective video analysis: What teaching practices do they notice?

My interest in understanding what pre-service teachers notice during self-video analysis was related to my desire to strengthen professional vision, a strong component of teacher expertise (Berliner, 2001). Goodwin (1994) first described professional vision as the "socially organized ways of seeing and understanding events that are answerable to the distinctive interests of a particular social group" (p. 606). Sherin (2001) adapted Goodwin's concept for the teaching profession to include the ability to notice and interpret significant happenings in a classroom. This act of noticing is an important component of professional vision (van Es and Sherin, 2008). Understanding what pre-service teachers notice is paramount to improving teacher expertise. van Es and Sherin (2002) identified three aspects to noticing behavior: 1) identifying what is noteworthy

about classroom behavior, 2) making connections between classroom interactions and 3) broader implications of teaching and learning, and using personal knowledge about context to make judgements about teaching situations. Expert teachers notice and reflect on classroom events that have an impact on student learning (Borko & Livingston, 1989).

Participants in this study focused noticing behaviors primarily on themselves, rather than on their students, a finding similar to a study by Fuller and Manning (1973), and supported by teacher expertise research that suggests the presence of differences in the receiving, processing, and monitoring of visual, classroom information between expert and novice teachers (Carter et al., 1988). Participants noticed their own appearance, mannerisms, voice, confidence, engagement, and enthusiasm most often when viewing video records. Some participants noticed aspects of their teaching style, such as lesson pacing and implementation, classroom management, and language clarity. A few participants noticed student engagement levels and non-verbal expressions of understanding. Snoeyink (2010) reported similar results in his study on "withitness" of student teachers. This superficial level of noticing skills is consistent with previous research on pre-service teachers' ability to notice (Rosaen et al., 2010; Sherin, 2001; Sherin, 2007; van Es and Sherin, 2002) and may also be attributed to the guidance offered for self-video analysis. Participants' self-reflection in this study was not guided by a research-designed instrument, questionnaire, or protocol. Instead, participants followed the directions of the assignment for the Practicum course, which asked them to reflect on their professional growth by considering "where you where, where you are, and what challenges you faced." Bryan and Recesso (2006) suggested that self-reflection with video was shallow, without providing careful guidance from teacher educators

suggesting a focus of video review. In a study of non-facilitated professional development using self-video, Calandra, Brantley-Dias, Lee, & Fox (2009) reported that teachers attend to superficial features of practice, like language and placement. On the contrary, Borko et al., (2008) found an increase in focus on mathematical procedures when teachers were involved in facilitated discussion during video analysis professional development. Moreover, in a more recent study, Beisiegel, Mitchell, & Hill (2018) reported no significant differences in depth and focus between teacher-led and facilitator-led conversations about self-video records, which used the Mathematics Quality Instrument to guide reflection. Collectively, these results point to the importance of scaffolding pre-service teacher reflection with a facilitation guide, or framework to focus self-video review to increase productive reflection (Davis, 2003; Hiebert et al., 2007). This may be more relevant for students in graduate entry programs for teacher certification that are one or two years duration as development of reflection skills must happen promptly (Coffey, 2014).

When pre-service teachers engage in self-reflective video analysis: How do they identify needed change in teaching practices?

I consider reflective practice as a cornerstone to preparing educators who successfully learn from their own teaching. Loughran (2002) reminded us that experience alone does not lead to learning. Effective reflective practice involved the framing and reframing of each teaching episode to develop professional knowledge and understand teaching practice, adding to the practitioners' wisdom-in-action. Dewey (1933) and Schön (1983) both believed that reflection should lead to improvement in practice. Schön's (1983) theory asserts that providing opportunities to reflect-on-action

using video records gives opportunity to change. Rich and Hannafin (2009) recognized this "stepping back" ability with viewing of video records as an important feature of reflection-on-action in pre-service teachers. Their findings suggest participants "…used video to reflect-on-action and mitigate the cognitive and logistical complexity associated with reflection-in-action" (p. 141). My interest in this study was to discern what the participant's identified as needed change in their practice as result of analysis of self-video.

In my study, participants perceived a change in practice when they focused on their own teaching behaviors (Calandra, Gurvitch, & Lund, 2008), such as classroom management, movement, language, awareness of surrounding, lesson pacing and voice level. In early reflection theory, Van Manen (1977) proposed this type of reflection to be technical, while Smyth (1989) proposed this type of reflection to be describing, in which teachers would describe what they did in concrete teaching events. Tripp & Rich (2012) identified recognizing the need for change as the first step in the teacher change process. Their findings suggested that teachers were more likely to change their teaching methods when they engaged in a focused reflection of self-video records that allowed them to "see the need for change with their own eyes" (p. 732). Loughran (2006) stated that change only happens when a problem of practice is perceived.

Supporting pre-service teachers in reflection about their perceived need for change in practice is often necessary for teacher change. According to previous research (Chung & van Es, 2014; Santagata & Guarino, 2011; Tripp & Rich, 2012), focusing reflection analysis to identify needed change in practice, providing collaborative environments to brainstorm ideas for change, and providing access to video records for

further evaluation of practice allows teachers to be confident and successful in change of practice. Sun and van Es (2015) identified a core teaching practice is learning to notice classroom happenings that affect student learning, learning to decompose instructional practice, and interpreting these events to make instructional decisions.

There is limited research on how using video records of practice to analyze one's own teaching influences actual teaching practice. van Es and Sherin (2010) found that teachers who participated in a video club changed instruction to include making room for student thinking and more probing for student thinking. Sun and van Es (2015) reported that secondary pre-service teachers who participated in a nine-month long video based course which included video cases and reflection framework changed teaching practice. Participants made space for student thinking by eliciting a range of student ideas and providing time for students to think; attended to student ideas during instruction through considering the idea, re-voicing, or rephrasing the idea; pursued student thinking by asking for explanation of their thinking and additional explanations; and finally posed alternative examples for students to consider to aid in understanding. This study did not investigate actual change in teaching practices, because of using self-video-analysis; however the limited research with this focus indicates the need for further study.

The relationship between categories of data

Data emerged in three categories, each with several subcategories, in addressing the research questions for this study and some relationships between these categories could be surmised. In category 1: Reflection, there was a relationship between the overall value of vide to the participants' and the frequency, timing, and process in self-video viewing. Participants who held video in high value tended to view their self-video

more frequently and soon after teaching the lesson than participants who did not value self-video as much. Participants who valued self-video also used the tool in a more specific manner, often to focus on a self-identified area that needed improvement. The relationship between the subcategories of reflection with and in absence of video was non-existent and that in itself is important. Participants did not seem to engage as frequently in self-reflection in absence of video records. In fact, most of the participants tied successful teaching in absences of self-video records to student performance. Nearly all of the participants discussed using exit ticket strategies and student exams as the evidence for their successful teaching.

As expected, the subcategories and properties of Category 2: Noticed Behaviors and Category 3: Perceived Change in Practice were similar. The most noticed behaviors in the self-image subcategory were many of the same behaviors participants identified as changed behaviors during the Practicum course semester. Participants noticed voice sound and language clarity and identified these properties as changed behaviors. Likewise, the most noticed teaching behaviors of classroom management and lesson pacing were also cited as perceived changed behaviors by the participants.

Finally, participants expressed the value of self-video as a window to all the happenings they missed while teaching in Category 1: Reflection Process. They stated many times the need to be able to see more of that big picture in the moment of teaching. They perceived this increased awareness as a change in teaching practice, evident in Category 3: Perceived Change of Practice.

Triangulation of data sources

Data gathered for this study included interviews with the participants, one focus group interview with the Clinical Educators who supervised the participants in the Practicum course, and a written reflection document requirement required in both Practicum courses. As I considered the triangulation of evidence, I was surprised at the lack of connection between sources. Clinical Educators verified that they each required participants to create a minimum of two self-video records during the course of the semester. However, the Clinical Educators did not use the video-records in their observations or feedback most often. The requirement of completing the "Inquiry into My Practice" (IMP) process, which mandates self-video for the pre-service teachers, seemed to be a separate process. When I asked the Clinical Educators about using the video-records with the pre-service teachers, all of them stated they had never done nor thought to do so. In addition, the requirement due dates of reviewing the self-video records varied among the educators with deadlines being enforced differently. Because of this, many of the participants did not actually participate in self-reflection using their self-video until the end of the semester when the assignments were due. This was especially true of the written reflection, "Map my Journey" assignment. Most participants' reflection papers were short in length and without great detail. Clinical Educators did not provide feedback to this assignment as it was due at the end of the semester.

Most, but not all, of the participants in this study had a positive perception of the use of self-video as a tool in self-reflection. Clinical Educators felt the same. However, reflection needed to be supported throughout the semester so that students are guided to

make connections between theory and practice as well as practice and student understanding. A more structured schedule for self-video analysis reflection and more connection of self-video records to the feedback offered by Clinical Educators might enhance the growth in reflection of preservice teachers.

Differences among participants based upon demographic characteristics

The diversity of the participants in this study allowed me to consider, in discussion, some possible trends and relationships. The first demographic characteristic I will examine is age. Age was represented in various ways in this study. Participants ranged in age from 21 to 47 years. However, the ages were not directly correlated to the undergraduate or graduate status of the participant. The oldest two participants were undergraduate students who entered college late in life after other careers. The youngest participants were traditional age, undergraduate students who graduated from high school and completed their college degree immediately. There were several participants who returned for teaching certification after obtaining another degree. Their ages varied from 23 years to 44 years. Age did not seem to be a contributing factor to differences in the value of self-video in reflection for these participants. The youngest and the oldest shared similar views.

The next demographic characteristic I explored was their level of enrollment (undergraduate or graduate) and Practicum course enrolled (1 or 2) as this characteristic is related to their use of self-video in reflection. There were four graduate level students who were seeking certification and eight undergraduate students seeking initial degrees and certification. All four of the graduate students were enrolled in the Practicum 2 course. Four of the undergraduate students were enrolled in each of the Practicum 1 and

Practicum 2 courses. This examination brought a few things to my attention. Students enrolled in the practicum 1 did not review their self-video records more than one time most often. The expressed being nervous and uncomfortable more often than those enrolled in the Practicum 2 course. This is logical as more experience with videotaping allows for increased comfort. Next, students enrolled in the Practicum 2 course discussed their desire to use self-video more often than the mandated requirement. However, the demands of preparing to teach four days per week were unsurmountable for many. In fact, many of the students enrolled in the Practicum 2 course completed their self-video analysis after their teaching was completed at the end of the semester. It was as if this assignment had to be put on the back burner in order to survive all the other demands of the course.

The certification area of the participants uncovers some interesting relationships. The most glaring is the differences in those seeking Early Childhood certification and others. Early Childhood students are required to use self-video records in two additional courses prior to their enrollment in the Practicum course. This additional experience might be attributed to comfort level and perceived value of the tool. Three of the participants, two undergraduate and one graduate, were seeking ECE certification. These students identified using self-video more than the course requirement; viewed their video records repeatedly; and noted using self-video to document a change in their practice they were implementing. There was also a difference in the use and viewing habits among the participants seeking certification in secondary education. Both of these candidates used video analysis less than the required amount and did not participate in a self-reflection process using video. For these participants, the video-taping process was often

cumbersome and difficult given the lecture type classrooms and age of students. The expectation of their clinical educator was also different than others as the videotaping process wasn't intertwined within the collaborative exchanges each week. Another mitigating factor is that these participants were required to prepare and teach upwards of 6 sections of class each day. Time for video-review was not a priority.

The final demographic characteristic that I explored is that of gender. The participants were seven females and five males in this study. The males in this study expressed less overall value to using self-video in reflection. One of the male participants felt that video would never capture his true self because he would be acting for the camera and another said he practiced the lesson over and over when he was scheduled to be videotaped. The males in this study had less self-video records and reviewed the video records less often. Most of their interview transcripts were shorter than the female participants. They did not have as much to say about reflection. Two of the male participants were graduate students seeking secondary certification. Potentially their experience with reflection could be limited given their undergraduate degree was not in education, a field that values and often requires reflective practice.

Collectively, the relationships among the demographic characteristics may have implication in teacher preparation policies and practice and will be considered later in this paper.

Conclusion

The use of video to impact pre-service teachers' self-reflection and practice is a continued area of interest among researchers. Consistent with previous research (Rich

and Hannafin, 2009; Rosaen et al., 2008; Tripp, 2009; Snoeyink, 2010; van Es & Sherin, 2002), pre-service teachers in this study believed self-video records to be valuable to self-reflection. They noticed their own self-image and mannerisms; levels of confidence, engagement, and enthusiasm; and classroom management skills. Pre-service teachers noticed differences between their recall of a teaching event and evidence on a video record. They perceived a change in student engagement, awareness, language clarity, and classroom management as an effect of self-video analysis.

Reflection levels of participants were consistent with novice teachers (Berliner, 2001) Inexperienced teachers notice superficial features and student on-task or off-task behaviors, and their ability to follow routines, attributing these to student understanding (Carter et al., 2008; Star & Strickland, 2008). In addition, novice teachers tend to focus on the whole class, rather than individual learning (Erickson, 2011). Shifting the focus of pre-service teachers noticing from themselves to students' thinking is imperative for growth in expertise. This is best accomplished by providing a framework for analysis and facilitation in the reflective process (Barnhart & van Es, 2015; Chung & van Es, 2014; Hiebert et al., 2007; Santagata & Angelici, 2010; Santagata & Guarino, 2011; Star & Strickland, 2008).

As discussed above, this study extended prior research in using video self-analysis in teacher-preparation programs by exploring the use of self-video records as a tool in the self-reflection of 12 pre-service teachers seeking certification at a Midwestern university.

Implications

The findings point to several implications important in the practice of preparing teachers to learn from their own teaching. A core practice of teaching is learning to attend the events in the classroom that are consequential to student learning, and interpreting these events to make informed decisions (Sun & van Es, 2015). Schön (1983, 1987) believed reflection-on-action should lead to change in practice. However, building reflective and analytic skills, viewed as a necessary component of teacher education programs, has been challenging for many teacher preparation programs. It requires support and practice (Dewey, 1933; Rodgers, 2002a; Schön, 1987).

Previous research finds affordances on the use of video in self-reflection (Borko et al., 2008; Hatch & Grossman, 2009; Sherin & Hahn, 2004; Wang & Hartley, 2003; Zhang et al., 2011) but viewing video records alone does not necessarily ensure that learning results from one's teaching (Brophy, 2004; Seago, 2004, Zeichner & Liston, 1987). Much research points to the value of using frameworks, guides, and video-based courses to support pre-service teachers in analyzing teaching (Barnhart & van Es, 2015; Hiebert et al., 2007; Santagata & Angelici, 2010; Stürmer, Könings, & Seidel, 2015; Windschitl et al., 2012). Educator preparation programs, such as the Midwestern University in this study, should employ the use of a facilitation framework in coursework that requires pre-service teachers to reflect upon their own or others teaching. Furthermore, this guided reflection, with and without the use of video, should begin very early in the educator preparation program, and occur often, to allow for the development of the critical noticing skills (Sherin & van Es, 2005; van Es & Sherin, 2002) that are needed to identify the important events of student understanding and facilitation of

alternatives to teaching practice. The Practicum 2 course may be too late to require self-video analysis as pre-service teachers are overwhelmed with work. Instead, pre-service teachers should be exposed to self-video analysis earlier in the program, such as the ECE students, to provide experience and success. Sun and van Es (2015) epitomized this idea when stating, "In this way, learning to notice instructional interactions, guided by a framework of teaching becomes a center goal for teacher preparation" (p. 203).

The use of triangulation of evidence in the process of giving pre-service teachers' feedback about their teaching episodes is a second implication of my research findings. Supervision practices at the Midwestern University setting of this study involve the use of written and oral feedback, after an observed teaching episode from a clinical educator supervising the pre-service teachers. This teaching episode may or may not have been videotaped, as well. In addition, pre-service teachers are asked to videotape at minimum two to four teaching episodes during the practicum course, and provide a written reflection, including identified evidence from the video record. Participants in this study, and in other studies (Coffey, 2014; Tripp & Rich, 2012), identified this triangulation as a valuable learning experience for them.

Limitations

There are limitations to this study. First, the pre-service teachers participated in this study voluntarily; therefore, it cannot be determined whether or not the results of the study were affected by the sample composition. It is possible that pre-service-teachers chose to participate in the study because of a pre-conceived notion of the preference or constraint of using video in self-reflection. Second, not all the participants reviewed their self-video records during both practicum course periods in which they were enrolled.

While it was a requirement of the practicum course, and an assumed protocol for this study, self-video review did not happen in the same manner for all of the participants in terms of the timing of video review or review process. Third, in retrospect, the use of a reflection guide or protocol during the participants' review of self-video records may have resulted in less general, more specific instances of noticing, which affect the quality of self-reflection (Sherin, 2007; Sherin & van Es, 2008). The use of a more defined protocol during the self-video review might have made self-reflection more productive (Davis, 2006). Finally, this study focused on a small sample of pre-service teachers. Thus, the findings of this study are characteristic of this sample, and limit the broader implications of the study.

Further Research

A natural progression for further research would be to continue investigating methods to focus pre-service teachers' noticing skills on critical classroom events, which are related to student understanding and learning. Utilizing a research-based teaching analysis framework, such as "Learning to Learn from Teaching (LlFT)" (Santagata & van Es, 2010), "or "Lesson Analysis Framework," or creating, and testing my own framework, would add to this body of research. Further analysis of the use of self-video as a tool for pre-service teachers to analyze their own teaching to make instructional changes is warranted, including longitudinal studies that follow pre-service teachers throughout their educator preparation program and their beginning teaching years. Sherin and van Es (2005) reported that mathematic teachers, who participated in video clubs, as professional development, changed their questioning strategies. Tripp and Rich (2012) found that as teachers recognized the need to change during self-video analysis, they took

ownership of the problem, were likely to implement ideas, had proof of the outcome of change, and used video analysis to evaluate the changes. Finally, the notion of collaboration between pre-service teachers, mentoring teachers, and teacher preparation faculty is a compelling area of research. Several participants in my present study identified a change in their reliance on self-video records throughout the time of the practicum course. Providing support for reflection during the collaborative exchanges offered in the practicum courses is research-worthy, as well (Sherin & van Es, 2008). Collectively, all the possible research endeavors will involve the ability to help pre-service teachers to reflect-in-action, a characteristic of teacher expertise (Berliner, 2001).

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Appendix A: Semi-Structured Interview 1 Protocol

Interview 1 Protocol

How do teachers experience self-video analysis?

Begin the interview with the following statements and questions:

Thank you for agreeing to participate in this interview. The purpose of the interview is to gain insight into your feelings about video analysis as a part of your self-reflection process to improve your teaching practices. I would like to remind you that the interview will last approximately 30-45 minutes. You can end the interview at any time and are not obligated to answer any specific question. Just let me know if a question makes you uncomfortable or you need to stop. Your name will not be disclosed during reporting purposes to maintain privacy and all information will remain confidential. I am going to tape record the interview. Do you have any questions before we begin? (Check tape recorder here to begin)

<u>General Questions</u>

1. Tell me your name?
2. What is your major or what grade do you teach?
3. Are you enrolled in Practicum 1 or Practicum 2 this semester?
4. Which Studio School are you placed at?
5. Tell me a little about the demographics of your classroom? (gender, number of students, race/ethnicity, special needs, etc)

<u>Video-taping procedures</u>

1. Describe your feelings about being video- taped while teaching? *Probe for:*
   a. Level of comfort
   b. Prior use-how many times used
   c. Problems with the set up or use of teaching channel app or other technology

<u>Self-reflection</u>

1. How many times did you watch each video-taped lesson?
2. What did you notice as you watched the videos?
3. How was your self-reflection process impacted by the video-taping?

<u>Teaching behaviors</u>

1. Have you implemented anything you learned from viewing the video? *Probe for how or specific teaching behaviors.*

Ending questions

1. Is there anything you would like to add about the self-video analysis and reflection process?

Appendix B: Semi-Structured Interview 2 Protocol

Interview 2 Protocol

How do teachers experience self-video analysis?

Begin the interview with the following statements and questions:

Thank you for agreeing to participate in this interview. The purpose of the interview is to continue exploring your feelings about video analysis as a part of your self-reflection process to improve your teaching practices. I would like to remind you that the interview will last approximately 30 minutes. You can end the interview at any time and are not obligated to answer any specific question. Just let me know if a question makes you uncomfortable or you need to stop. Your name will not be disclosed during reporting purposes to maintain privacy and all information will remain confidential. I am going to tape record the interview. Do you have any questions before we begin? (Check tape recorder here to begin.)

General Questions

1. What is your name?
2. What is your age? (offer age range if not comfortable)
3. What Studio School and grade are you placed in at this time?

Common questions for each participant

Noticing Behaviors

1. What critical events do you notice in your classroom videos?
2. How do you assess your teaching of a lesson in absence of a video record?

Connections to Broader Teaching and Learning

1. What does the video tell you about your teaching?
2. How do you use evidence in your video to interpret your classroom teaching?

Making Judgements about Teaching and Behavior Change

1. How have you made use of the things you have learned from self-video analysis?

Specific questions for each participant informed from researcher field notes

S

1. How does video help you see the children's thinking?
2. How does video help you with checking for understanding?
3. How does video affect your understanding of engagement and behavior management practices?
4. How does video inform formative assessment practices?

R

1. Can you talk about the impact video has on opportunity while teaching?
2. How does video help you check for understanding?
3. How does video help you see the children's thinking?

KA

1. How does video affect your classroom management?
2. How does video affect teaching pedagogy?

M

1. How does video affect your questioning techniques?

J

1. How does video affect your classroom management?
2. How does video help you see the children's thinking?
3. How does video inform your formative assessment practices?

L

1. How does video affect your lesson planning process? (probe for choosing teaching pedagogy)

K

1. Tell me about your self-image as you watch your teaching vide0s.
2. How does video affect your classroom management?

Appendix C: IRB Approved Participant Consent Form

Informed Consent for Participation in Research Activities
Does Seeing Matter: Exploring pre-service teachers' use of self-video as a tool for self-reflection in the study of their own practice

Participant _____ HSC Approval Number **1078051-1**

Principal Investigators: Lynn Navin PI's Phone Number (314)516-6789

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1. You are invited to participate in a research study conducted by Lynn Navin and Dr. Patricia Kopetz. The purpose of this research is to examine the potential of using video analysis as a tool for self-reflection to learn from your teaching.

2. Your participation will involve:

   a)
   - Participant interviews will be conducted in September and December 2017. Interviews will focus on your experience with using self-video analysis and self-reflection of your own teaching.

   - Participants will be asked to participate in up to two individual interviews during the duration of the study. The interview will be located in the office of Lynn Navin. In order to be sure I understand your experience, the interview will be audio-recorded and transcribed. Transcripts will not include any real names of participants.

   - Principal Investigator review of your Look Back and Map My Journey submitted assignment required in the Practicum 1 and Practicum 2 courses at the end of the semester (December 2017) after grades have been assigned by the instructor of the course. The review will involve analysis of the written work to discover similarities and differences. The Principal Investigator will not be involved in assignment of the course grade thus participation in this study will not affect your grade in any manner.

   - Approximately sixteen participants may be involved in this research.

   b) The amount of time involved in your participation will be approximately forty-five minutes per interview.

3. There are no anticipated risks associated with this research.

4. There are no direct benefits for you participating in this study. However, your participation will contribute to the knowledge about teacher professional development using video analysis and may help society.

3. Your participation is voluntary and you may choose not to participate in this research study or to withdraw your consent at any time. If you want to withdraw from the study, you can contact the researcher at lynnnavin@umsl.edu. You may choose not to answer any questions that you do not want to answer. You will NOT be penalized in any way should you choose not to participate or to withdraw.

6. By agreeing to participate, you understand and agree that your data may be shared with other researchers and educators in the form of presentations and/or publications. In all cases, your identity will not be revealed. In rare instances, a researcher's study must undergo an audit or program evaluation by an oversight agency (such as the Office for Human Research Protection). That agency would be required to maintain the confidentiality of your data. In addition, all data will be stored on a password-protected computer and/or in a locked office.

7. If you have any questions or concerns regarding this study, or if any problems arise, you may call the Investigators, Lynn Navin at (314) 516-6789or the Faculty Advisor, Dr. Patricia Kopetz at (314) 516-4885. You may also ask questions or state concerns regarding your rights as a research participant to the Office of Research Administration, at (314)516-5897.

I have read this consent form and have been given the opportunity to ask questions. I will also be given a copy of this consent form for my records. I consent to my participation in the research described above.

Participant's Signature	Date	Participant's Printed Name	
Signature of Investigator or Designee	Date	Investigator/Designee Printed Name	

Appendix D: IRB Focus Group Participant Consent Form

Informed Consent for Participation in Research Activities
Does Seeing Matter: Exploring pre-service teachers' use of self-video as a tool for self-reflection in the study of their own practice

Participant _____ HSC Approval Number **1078051-1**

Principal Investigators: Lynn Navin PI's Phone Number (314)516-6789

1. You are invited to participate in a research study conducted by Lynn Navin and Dr. Patricia Kopetz. The purpose of this research is to examine the potential of using video analysis as a tool for self-reflection to learn from your teaching.

2. Your participation will involve:

b)

- One Focus group interview will be conducted in December 2017 or January 2018. Interviews will focus on your experience with students using self-video analysis and self-reflection in the Practicum 1 and Practicum 2 courses that you supervise.

- Participants will be asked to participate in one focus group interview during the duration of the study. The interview will be located in a COE classroom space at UMSL. In order to be sure I understand your experience the interview will be audio-recorded and transcribed. Transcripts will not include any real names of participants.

- Approximately 8 participants may be involved in this research.

b) The amount of time involved in your participation will be approximately 90 minutes.

3. There are no anticipated risks associated with this research.

4. There are no direct benefits for you participating in this study. However, your participation will contribute to the knowledge about teacher professional development using video analysis and may help society.

2. Your participation is voluntary and you may choose not to participate in this research study or to withdraw your consent at any time. If you want to withdraw from the study, you can contact the researcher at lynnnavin@umsl.edu. You may choose not to answer any questions that you do not want to answer. You will NOT be penalized in any way should you choose not to participate or to withdraw.

6. By agreeing to participate, you understand and agree that your data may be shared with other researchers and educators in the form of presentations and/or publications. In all cases, your identity will not be revealed. In rare instances, a researcher's study must undergo an audit or program evaluation by an oversight agency (such as the Office for Human Research Protection). That agency would be required to maintain the confidentiality of your data. In addition, all data will be stored on a password-protected computer and/or in a locked office.

7. If you have any questions or concerns regarding this study, or if any problems arise, you may call the Investigators, Lynn Navin at (314) 516-6789or the Faculty Advisor, Dr. Patricia Kopetz at (314) 516-4885. You may also ask questions or state concerns regarding your rights as a research participant to the Office of Research Administration, at (314)516-5897.

I have read this consent form and have been given the opportunity to ask questions. I will also be given a copy of this consent form for my records. I consent to my participation in the research described above.

Participant's Signature	Date	Participant's Printed Name	
Signature of Investigator or Designee	Date	Investigator/Designee Printed Name	

Appendix E: Focus Group Interview Protocol

Focus Group Protocol

How do pre-service teachers use self-video to reflect upon their own teaching practices?

Begin the interview with the following statements and questions:

Thank you for agreeing to participate in this interview. The purpose of the interview is to gain insight into your feelings about video analysis as a part of the self-reflection process of the students you supervised in Practicum 1 and Practicum 2 courses. I would like to remind you that the interview will last approximately 60-90 minutes. You can end the interview at any time and are not obligated to answer any specific question. Just let me know if a question makes you uncomfortable or you need to stop. Your name will not be disclosed during reporting purposes to maintain privacy and all information will remain confidential. In order to be sure that I understand your experiences, I am going to tape record the interview. All identifying information will be removed during the transcription process. Do you have any questions before we begin? (Check tape recorder here to begin)

<u>General Questions (asked to each participant in the focus group)</u>

6. Tell me your name?
7. How many Practicum 1 and Practicum 2 students do you supervise?
8. How many years have you been a clinical supervisor?
9. Which Studio School do you supervise?
10. Tell me a little about the demographics of the schools? (gender, number of students, race/ethnicity, special needs, etc.)

<u>Video-taping procedures</u>

1. How do your students use self-video in their own learning?
2. How do you think students feel about using video?
3. Does the video- taping process present any challenges for your students?

<u>Self-reflection</u>

4. How many times did you think your students watch their self-videos? *Probe for mandatory vs. selective use*
5. What do your students notice as they watched the videos?
6. How was their self-reflection process impacted by the videotaping?

Teaching behaviors

2. Have you observed any change in teaching behaviors as a result of self-video analysis? If so please describe. *Probe for how or specific teaching behaviors.*

Instructor use

1. In what ways do you use the video recordings of your students?
2. What impact has the tool of video-analysis had on your supervision?

Ending questions

2. Is there anything you would like to add about the self-video analysis and reflection process?

Appendix F: Transcription Rules

Transcription will include the following:

Interview label:

Interviewee: Name/Grade Level and Subject taught

Interview Date:

Interview Time:

Interview Location:

Interviewer:

Pseudonym:

Brief description of the set up and procedure

General instructions:

The transcriber shall transcribe all individual interviews using the following formatting:

- Times New Roman 12-point face-font
- One-inch top, bottom, right, and left margins
- All text shall begin at the left-hand margin (no indents)
- Entire document shall be left justified
- Line numbers added
- The transcriber shall indicate when the interview session has reached completion by typing **END OF INTERVIEW** in uppercase letters on the last line of the transcript.

Symbols to be used in transcriptions:

? = a question

! = an exclamation

??? = ambiguity or a phrase that was not intelligible

… = a pause or silence of less than 30 seconds

italics = interviewers comments

[ ] = identifiable information was modified

Appendix G: Code Book

Category 1: Reflection

Subcategory	Property	Dimension	Data
Value of video records	Overall Value	High to low	J1: 94; M1: 70-75; M1: 104-109; R1: 69-70; DW1: 200-204; R1: 179; D2: 175; S2: 61-64; KW2: 67; DW1: 160-161
	See the big picture	Beneficial to not beneficial	S1: 65-66, 107; K1: 124, 129; R1: 148; KA1: 63-64; DW2: 78-79; J2: 93-100
	Support for evaluation	Supportive to unsupportive	KA2: 121-122; M1: 90-93; R1: 149 D1: 124-126; M1: 95-96; S1: 97-100
	Offers other perspectives	Helpful to not helpful	SK1: 98-101; KW1: 659-62; R1: 144; M1: 95; S1: 64; K1: 132-133; S2: 50-53; J2: 169
	See self-growth over time	Beneficial to not beneficial	S1: 126-127; K1: 153-156; D2: 103-104 S2: 30-35;
Reflection process with self-video	Frequency of viewing each record	Frequent to not frequent	DW2: 26-27; DW2: 56; D1: 111; K1: 103-105; KA2: 61-64; R2: 101; L1: 78-80; M1: 77; R1: 105 SK1: 89 J1: 81; KA1: 99; KW1: 80, 83; B1: 92; L2: 157; J2: 115; KW2: 82
	Timing of video review	Immediate to later	S1: 88-89; R1: 151-153; R2: 43-45; M2: 74; B2: 65-69; S2: 39; J2: 135-137; K2: 115-120
	Direction details	Self-directed to directed by assignment	S1: 110-1131; M1: 77-79; DW2:185; R1: 106-108; M1: 132-133 R1: 111-114; KA1; 99-100; D1: 79; L1: 170-174; K2: 133; D2: 25-27; D2: 41-46; J2: 115-116; KA1: 160-162; DW1: 161; DW1: 173-175; KW1: 101-103
Reflection process in absence of self-video	Value	High to low	R1: 95; S1: 116-120; K1: 158-162; KA1: 89-90;
	Frequency	Frequent to not frequent	DW1: 128-129; DW1: 160; J1: 102; KW1: 99; L2: 66-68

	Method of assessing their own teaching	Use of self to use of other methods	M2: 44-47; KA2: 55; DW2: 147; D2: 140; KW2: 86-87; SK2: 111-117; J2: 49-53; B2: 95; M2: 45; L2: 81; RW2: 71-75; K2: 45-46; K2: 123-126, 129-130; B1: 125; K2: 47; D2: 132-134; D2: 149; S2: 42-47; S2: 123-125; L2: 69-72; SK2: 107

Category 2: Noticed Behaviors

Subcategory	**Property**	**Dimensions**	**Data**
Self-Image	Visual	Aware to unaware	K1: 108; B1: 131; R1: 71, 117, 139; J1: 113; K2: 67; K2: 81; K2: 96; DW2: 66-67; DW2: 96-97; L2: 95-97
	Voice Sound	Pleasant to unpleasant	D1: 77; L1: 113; SK1: 91-92; K1: 114-115; R1: 71-72; SK2: 97
	Teacher Placement	Fluid to stationary	L1: 82; DW1: 188-189; B2: 53-54; D2: 33-38; SK2: 47-49; B1: 130
	Confidence Level	Confident to not confident	K1: 144; KW1: 86-87; M2:68; KA2: 37; D2: 68; KW2: 48-51; SK2: 100, 102-104
	Enthusiasm	High to Low	L1: 83-84; SK1: 92; K2: 100-101; M2: 72
Student Behaviors	Engagement	High to low	K2:30; DW2: 74-75; DW2: 114-115; S1: 67-68; R1: 129-130; M1: 85-86; D2: 57; 60; B2: 107; D2: 118; KA2: 33; ; KA1: 133, 134; J1: 85; B2: 110 S2: 81-85; S2: 98-99; J2: 34; J1: 97-98
	Non-verbal expression of understanding	High level of expression to low level of expression	RI: 141; R2: 79-80; B2: 32- 33; S1; 105-106; KA1: 119-121; KA2: 111-113; R2: 79-80; R2: 33; M2: 35-36; M2: 98-103; S2: 103-110; KW2: 70-74
Teaching Behaviors	Classroom Management	Controlled to uncontrolled	M2: 32-33; B1: 73-77; M2: 52-54; KW2: 36-39; L2: 109-110; L1: 85-88; M1: 82-84; R2: 37

	Language Clarity	Clear to unclear	L2: 99-100 SK2: 33; SK2: 97; K2: 84-87; B1: 69, 76, 105; B2: 73-75
	Lesson Pacing	Efficient to non-efficient	KA1: 94-95; B1: 143-145; KA2: 30; D2: 65-68; J2: 63
	Lesson Plan Implementation	Low to high amount of deviation	L2: 99-100 SK2: 33; SK2: 97; K2: 84-87; B1: 69, 76, 105; B2: 73-75 L1: 101-107; SK1: 102-103; M1: 83-85; L2: 121

Category 3: Perceived Change of Practice

Subcategory	**Property**	**Dimensions**	**Data**
Engagement and Interactions		Change to no change	SK1: 108-112; K1: 110; J1: 85-90; SK1: 137-138; B1: 161; KW1: 90-93; D2: 77; D2: 181
Teaching Behaviors	Classroom management	More control to less control	L2: 31; J2: 82-87; KW 130-133; SD2: 31-35; K2: 107-111, KA1: 125-129; J2: 37-40; J2: 75
	Teacher movement	More movement to less movement	DW1: 192-196; D2: 181
	Language	Increased clarity to decreased clarity	R1: 122-123 ; M2: 108; K2: 86-87; D1: 156 ,M2: 107-109
	Awareness of surroundings	Increase or decrease	KA1 131-136; R2: 57-59
	Lesson pacing	More on pace than off pace	S2: 70-76; KA2: 49-59 R1: 130; K1: 138-140
	Voice Level	Softer to louder	D1: 153-156; K1: 114-115

Category 4: Video Taping Process

Subcategory	**Property**	**Dimension**	**Data**
Problems with Technology	Uploading Speed	Fast to slow	KA1: 72-75; K1:60; R1:82-84; L1:62-64; SK:84; S:87; DW1:104-105; M1: 118-119; J2: 140

	Set up	Many problems to few problems	D1:103-106; M1: 63; SK1: 74-75; SK1: 120-122; SK1: 156-159; DW1: 98; S1: 80-84; DW1: 98., 101-102; DW2: 28-32; l2: 178; SK2: 65-67; KW2: 29-33; KA1: 70-71(dw is here too and sk)
Impact on Behavior	Student behavior	High impact to low impact	L1: 45; KW1: 76-77; DW2: 31-32: DW2: 71-73; KA1: 83
	Teacher behavior authenticity	High to low	D1: 116-117; DW2: 176-177; D1: 120; DW2: 123, 127-128; S1: 60-62; DW1: 69-76; 81-82 SK2: 85-86
Frequency of video-taping		Frequent to not frequent	D1: 74; l1: 52-53; SK1: 80, 117; S1: 74-77; K1: 69; DW1: 88; M1: 60; KA1: 66; J1: 68-71, 77; M2: 126; KW1: 69; R2:40; D2: 86; K2:36; S2: 37;L2: 177
Level of Comfort		Comfortable to uncomfortable	SK1: 75; KA1: 60-61; DW1: 80; DW2: 151; K1: 63, 88-91; S1: 60, 70; SK1: M1: 56-58; B1: 64; D2: 55
Level of Experience		High to low	SK1: 76-77; SK1: 131; D1: 87

Appendix H: Detailed Codebook

Category 1: Reflection

Subcategory	Property	Dimension	Data Example
Value of video records	Overall value	High to low	J1: 94 "I think it's valuable because you have to, you have to be able to look at some, look at your performance and videotape is a good way to do it." DW1: 161-162 "I can see it as helpful but at the same time not really." M1: 74-75 "I think I mean I like to self-reflect, it helps my teaching. It definitely has improved my teaching." KW2: 67 "I would say probably not a whole lot. I think just the experience with teaching more and more changed the way I taught." DW1: 200-204 "Just because it might not be as helpful to me doesn't mean it isn't going to be helpful for anybody. Um I do see merits you know despite, again despite not necessarily thinking it's the most beneficial thing for myself, I see merits in doing it." S2: 61-64 "Um honestly I'd say I don't rely upon it as much as I do other sources. For instance, collaboration. Um other teachers in the building. I feel like at the placement that I was at for student teaching I relied more on those relationships and that um information I got from them than the video itself."
	See the big picture	Beneficial to not beneficial	J2: 93-100 "Um well you get a chance sometimes when you are doing the

			lesson you don't get a chance always to observe what um all the children are doing, whether they are focusing. You are in the moment, you don't have and eye that can carefully exam 22 children all at the same time. I mean you try to have an eye on the whole class. It's not like there are kids that disappear out of your view but you don't always get a chance to focus on really carefully if they are really engaged or not. But when you watch the video you get a chance to watch all the kids and see which ones are really wandering off." S1: 65-66 " There are so many things that happen especially having 25 students in the first grade that happen without me even knowing that they happened while I was teaching so I think I like the aspect of being able to see who was actually on task and who was you not while I was teaching." R1: 148 "Really easier to watch a video because you are not missing any of the details."
	Support for evaluation	Supportive to unsupportive	S1: 97-100 "I do find that it's more beneficial when there is an observer there um because I can kind of compare their notes and kind of go back and see in the video where that happened or where that didn't happen and other examples of what they are talking about. Um so, I do find the pairing of those two things beneficial. M1: 95-96 "You have two sides to the story so the clinical educator's reflections and I can reflect on what she tells

			me and then I have the videos to also help myself out. D1: 124-126 "…I was able to watch myself and I think that helped the self-reflection a lot more because I had Ellen telling me her thoughts, her opinions, her critique. I could watch the video myself and see if I agreed with her…" M1: 90-93 "…but a video is going to capture everything I do so something I thought went really well I watched the video and went oh that did not go over well and vice versa. Um so I think it's more beneficial to have the videos and self-reflect because I at least know the facts are there. KA2: 121-122 And the video is just concrete. It's just there. It doesn't have any opinions attached to it. It's unbiased. It's just there."
	Offers other perspectives	Helpful to not helpful	KW1: 59-62 "…cause it's totally different seeing it in front of the class versus seeing it whenever the camera is like to their backs." K1: 132-133 "And also you can see from an outside point of view, you know the kids point of view… S2: 50-58 "I think it's a good way to see how like I said before how others are perceiving your teaching because in the moment you're doing your thing. You're teaching and you're kind of seeing it from the teacher's point of view because you are still up in the front of the classroom. But watching the video you are

			seeing how other people are seeing you. How your students are seeing you."
	See self-growth over time	Beneficial to not beneficial	S2: 30-35 "Um I definitely like to see the progression of my teaching. Um one of the things that I really noticed is like behavior management. That's something that I like to look at a lot because I think that's an area where I struggled definitely at the beginning coming into student teaching. So I was able to pick out when I was using verbal redirection vs non-verbal redirection and those are two things like using verbal and non-verbal together are something I really worked on and was able to see you know as I progressed in my teaching during student teaching." K1: 153-156 "I think it helps on a whole level like from the beginning to the end…I can see you know how I changed from that point to this point, it is like a continuum." D2: 103-104 "I really do feel like watching that first video made me so much better by the last video."
Reflection Process with Self-video	Frequency of watching each episode	Frequent to not frequent	K1: 103-105 "Um for the prac video, I have only watched it twice so far. For the one in my toddler practicum I would go back um I would watch in once or twice before the next lesson then I kind of watched them all at the end again just to see if there were any differences." D1: 111-113 "At least three. Um the first time I watched it by myself to literally just critique my own self. And the second two times my daughters, my

			younger two daughters wanted to see Daddy teach…" J2: 115 "At least three times I looked at the videos." DW2: 26-27 "Um I mean I usually had to use them for my UMSL assignments and for MOPTA. Um outside of that I honestly haven't used them much."
	Timing of video review	Immediate to later	S1: 88-89 "…it takes a very long time for videos to upload so by the time I get a change to actual like make comments on them it's been a couple days. So I would like to do that more rapidly, like right away while it is fresh in my mind. R1: 150-153 "…often times you are going to enact an assignment and you might not write a reflection or think about it until a few days later…" J2: 135-137 "I mean we upload it that night. I usually go to a job right after a school day and then I upload it that night and get it on Teaching Channel. I like to get things knocked out. So I was doing the video notes at the same time." B2: 65-69 " My observation video 1 I viewed later that night or so when I got home later that day. The observation 2 video probably about a week later." K2: 115-120 "Um, sometimes just hearing every little thing and re-watching it after a couple weeks because I usually watch it right away you know at the end of the day or that night but watching it a couple weeks later I think it makes it easier to reflect on

			it because when I watch it that day if it went really bad than all I see is all the things that went wrong. Or if it went what I thought was really good all I see was this was the best video ever. But then while I am detached from it, oh we could have worked on that. It becomes more clinical than personal
	Direction details	Self-directed to directed by assignment	S1: 110-113 "Um one of the things I am kind of focused on this semester viewing videos is my positive narration while I am teaching. So I want to make sure that I'm being overall positive in giving students positive motivation to decrease negative behaviors while I am teaching so that's one of my goals this semester." M1: 77-79 "Um I probably watched each lesson twice. I wanted to go thru the first time to just get a general gist and the second time is really when I went through and like marked or like commented or time stamped or whatever like that. K2: 133 "I think it's important to watch it and then write your reflection and while you are watching it again." DW1: 161 "I do reflect on what I am doing in the classroom a lot. In terms of the formal style of reflection in this Inquiry into My Practice, I don't." DW1: 173-175 "It's nice to kind of have the reminder of hey, I should think about this. What did we do today and how does that help but it just seems so forced sometimes when you have to sit and record it and then you have to answer the same questions you know over and over

			again and ugh…so I don't like the forced aspect of it but I do like again I like those reminders of the little things that might sometimes get over looked when you are actually kind of building your lesson." KA1: 160 "I really like how we have like the Inquiry to my Practice." R1: 111-114 "Um I would say in the first viewing is like when let me reacquaint myself what is going on in the lesson. It has been a few days since I enacted it. The second time is all right let me start nitpicking at these details. And the third time is let me really clarify what happened in this specific moment and so just picking out those little items.
Reflection process in absence of video	Value	High to low	R: 95 "Yeah I think that has been the most like resounding component of my education that I can I mean repeated over and over from undergraduate thru this experience." S1: 116-120 I think I mean I'm pretty self-reflective in general. Um a lot of it for me is more written. So if I were to watch the videos, my self-reflection comes in when I am writing those comments on them or when I am using them to write a written reflection." K1: 158-163 "If you teach something and you just keep doing it and you don't think about it and then every day your class is a mess or it's not a mess then you never change in those moments in becoming more meaningful. They are just the same mess I guess. But if you reflect on

			it, you can change and reach more kids." KA1: 89-90 "Okay, I think self-reflection is definitely a good tool to have because if we don't think about what happened and why it happens then nothings every going to change."
	Frequency	Frequent to not frequent	DW1: 128-129 "In terms of personal reflection um you know I do after the first time giving the lesson or kind of regrouping between classes or something like that cause I switch rooms." DW1: 160 "I do reflect on what I am doing in the classroom a lot. In terms of formal reflection in this Inquiry into My Practice, I don't." L2: 66-68 "Well I feel like to be very honest sadly this semester has been so chaotic that it is hard when you are not asked to reflect on it. There is literally just I don't I don't feel like I have had the time to do that."

	Method of assessing their own teaching	Use of self to use of other methods	M2: 44-47 "I look at student work to see if student understand and then while I am teaching I will take notes informally on what students understand when I ask questions." KA 2: 55 Usually the way I asses it then is usually by the exit slips or whatever the written activity was that went along with it." SK2: 111-117 "Um yeah I mean I was able to give student surveys and also you can just look at their homework assignments and their growth and get feedback from them throughout the course of the semester which was good. I think we had to vie a professionalism survey checklist of some kind like and assignment for practicum 2." KW2: 86-87 "I would say it's more the assessments I give, like the informal, like just gauging what they learned and what they understand so if they're not getting it then I know I did something wrong." L2: 81 "Yeah I have been really diligent about keeping a notebook" J2: 49-53 "I go back and make sure were the objectives met. Do I think I covered the objectives effectively with the lesson? Did the activities I do during the lesson cover those and then did the check for understanding, later the formative and summative assessments. Did the kids get what they needed out of it when I review those?" R2: 72-75

			"Then at that point I feel I need to consult somebody else. Um and sometimes I do that anyway because I don't know if I see myself the way other people will see me. But if I don't have a video that's when I talk to my mentor teacher or my clinical educator for some really specific feedback without using the video. S2: 123-125 "I find myself also relying on like I said those collaborative relationships and also just as I'm as I'm growing as a teacher I'm learning to make those adjustments more in the moment than having to um debrief as deeply. S2: 42-47 "um a lot of it is collaboration with people in the class. So my cooperating teacher was often in the classroom while I was teaching so we would kind of debrief after um sometimes also like planning lessons, like after you teach a lesson talking about it and thinking about moving forward for the next lesson. We talked about that a lot with my cooperating teacher. Also with other student teachers at my school We were working together a lot as well as talking about how our lessons went, things we've tried in the classroom, bouncing ideas off of each other."

Category 2: Noticed Behaviors

Subcategory	Property	Dimension	Data Example
Self-Image	Visual	Aware to unaware	K1: 108 "Like I don't think I smile enough." K2: 81 "So when I'm teaching I notice that I really have a hard time smiling…" K2:96 "I know the first thing I happen to see is what I notice the appearance first. I kind of have to re-watch it because at first I am like I shouldn't have worn that dress." DW2: 66-67 "…I am apparently a very awkward person when I am standing in front of the classroom um I tend to gesture a lot with one arm. The other arm just stands there by my side."
	Voice Sound	Pleasing to unpleasing	D1: 77 "Which I don't like watching myself cause my voice really sounds like that." L1: 113 "And mostly I am please with my tone." SK1: 91-92 "Um I noticed I wanted to articulate more after watching the video, maybe varying my pitch and tone more." K1: 114-115 "I noticed in the beginning that I needed to be louder…" SK2: 97 "Yeah, my voice does sound weird, that's one thing I noticed. "
	Teacher Placement	Fluid to stationary	L1: 82 "I think I am surprised at how much I move around." B2: 53-54 "Well the way I noticed that I am more of a, I guess the traditional teacher. I stand up at the board and draw and do a lot of visuals" D2: 33-38 "…the big thing I noticed is to not turn my back on students…"

	Confidence Level	High to Low	KW1: 86- 87 "Um I notice some progression after like seeing watching my videos from the very beginning to now like I'm a little bit more comfortable in front of the class…" M2: 68 "Um I've learned I am more confident then I think I am when I go into it." SK2: 100 "I seem fairly confident but it just depends on the lesson and the material." KA1: 37 "Um like I am not nervous in front of the classroom. I feel comfortable."
	Enthusiasm	High to low	L1: 83-84 "I am very animated and you know that is something you don't notice about yourself because you are not looking in a mirror." M2: 72 "Once I get going my students are really engaged and into it." SK1: 92 "Just being more enthusiastic to the kids maybe could have helped."
Student Behaviors	Engagement	High to low	R1: 129-130 "Um…I noticed when I feel like that I start rambling on and on and I can tell my kids are losing focus." S1: 67-68 "I think I like the aspect of being able to see who was actually on task and who was you know not while I was teaching." DW2: 74-77 "Um you notice the kids that might be sitting in the back of the room helping each other as opposed to sitting back there to slack off." DW2: 114-115 " So I think some of that shows with the recordings especially you know when you do a recording in October and these kids are all just done at this point." J1: 97-98

			"…I can see where the kids may not have been interested there or you know I didn't approach that well."
	Non-verbal expressions of under-standing	High level of expression to low level of expression	R1: 141 "I can see that my kids are all you know their bodies are all turned towards the speaker so I can tell they are really tuned in." R2: 79-80 "Um I mean a lot of it is just how expressive they are. You can see when a light bulb goes off." B2: 32-33 "So my first observation video that I recorded, it was interesting just watching how the kids react to my lesson cause when I was teaching I couldn't focus on all the kids." S1: 105-106 "…I can see this child making connections or I can see this child not really following which I think helps make me more aware." KA1: 119-121 "You can also tell when you have lost a student cause sometimes you don't always catch every single students reaction …you can kid of see like oh they had a confusing spot right there or like oh, that's when they got it. KW2: 70-74 "Well for instance I just recorded my task 4 so I was able to well my teacher actually recorded it from the back of the room so I was able to gauge like whenever I would do a turn and talk I would look to see what they are saying cause I couldn't hear it whenever I was at the front of the room but I could hear it in the video so being able to see what they're thinking and the differences in their understandings was helpful to me."

Teaching Behaviors	Classroom Management	Controlled to uncontrolled	M2: 32-33 "I notice a lot of student behaviors and the classroom management pieces that I use and I only stick to a couple." KW2: 36 "Definitely classroom management for sure." M1: 82-84 "I noticed a lot of my interactions with my students and how I like tried to positively reinforce good behaviors. I've also notices certain types of strategies I used…" L1: 85-88 "…the students were totally engaged but I didn't give enough positive reinforcement. R2: 37 "…Just about praising kids, you know trying to focus on the positive rather than the negative."
	Language Clarity	Clear to unclear	L2: 99-100 "I am very articulate, I speak really clear and concise." SK2: 97 "I also talk too fast." SK2: 33 "It seemed like I didn't articulate well enough and maybe talked too fast." K2: 84-87 "So sometimes I just say a bunch of things and I didn't make any sense when I am watching the video and then but at the time it made sense in my head. I guess I connected a whole bunch of dots that really weren't there. And so it helps me be more intentional about how clear I am giving directions because sometimes it's just not good directions." B2: 73-75 "I've noticed that from the first time we had the interview I got to look at that video with the small group and I adjusted my terminology and verbiage to just figure out how to just watch for explicit content language."

	Lesson Pacing	Efficient to non-efficient	KA1: 94-95 "Sometimes you can see it oh it felt like a split second when you were doing it but sometimes it is actually a little longer than you thought and it causes time management problems…" J2: 63 "It shows are you working at a steady pace."
	Lesson Plan Implementation	Low to high amount of deviation	L1: 101-107 "I just think it really makes you realize things you miss like in your lesson plan. For instance, you write something down and then you completely forget it. Reviewing you are watching that progression and Oh I left out an entire component of this thing I was trying to convey so that is extremely helpful…I just totally left it out cause you get side tracked or you get nervous or whatever." SK1: 102-103 "And you can see if there's like a few points that you missed maybe too so…" L2: 121 "You write a lesson, then you do the lesson, then you realize the things you have totally left out."

Category 3: Perceived Change of Practice

Subcategory	**Property**	**Dimensions**	**Data Examples**
Engagement and Interactions		Change to no change	SK1: 108-112 "I mean now whenever I make examples in the front of the class I try to use their lives in the examples and diagrams….It makes the students more connected and engaged in the examples. J1: 85-90 "Engagement getting better, getting being a little more catchy at the beginning of the lesson to try to bring the students to be engaged. To get them interested in what you are doing after the first lesson I

			needed improvement on that to I had to figure out ways to be." KW1: 90-93
Teaching Behaviors	Classroom Management	More control to less control	KA1: 125-129 "One thing I have changed is giving students a time limit, at least third grade otherwise they will take their own sweet time chatting with friends going from transitioning so from direct instruction to small group or independent work like counting down so say like from five or something lets them know oh hey we need to get moving fast otherwise the transition would take a couple minutes and you really don't have that time built in to the lesson to do that." J2: 37-40 I think little more giving it a little more structure at the beginning especially with transitions. Cause during the lessons you have to transition them from whole group to individual group and I saw a couple areas I was able to help those transitions go a little smoother so that less time was wasted, less confusion to the students so they could stay more focused on what they were doing." L2: 31 "I was looking at a video made in the spring of last year and then a video I made just a month ago and there were significant changes in my approach to curriculum and classroom management. J2: 82-87 "Yeah I mean I noticed like one of the earlier videos I wasn't using enough, I don't know what you would call them, like authoritative statements, "class class", one two three, eyes on me" with strong conviction. It was more earlier on it

			was like guys be quiet up there instead of getting the whole class so I noticed I needed to do that more because the class sometimes gets too chatty and doesn't keep the chatting down. When you use stronger statements I noticed the class gets a little more quiet and focused." KW1: 130-132 "I think classroom management has definitely just because before it was more of just like I said trying to get through and now it's more of trying to keep the kids focused…"
	Teacher Movement	More movement to less movement	DW1: 192-193 "but in other ways I do kind of noticed myself more now kind of walking back and forth at least in my figure eight and wandering back to this side of the room." D2: 181-183 "I moved around. I was far more engaging. Because I find like in that first lesson I was standing in the same spot the whole time and I wouldn't recommend that to any teacher ever."
	Language	Increased clarity to decreased clarity	R1: 122-123 "I definitely pay more attention to my language after watching those videos I mean I always try and do that but especially with kindergarteners it is so important so I became really intentional with the words that I use." K2: 86-87 "And so it helps me be more intentional about how clear I am giving directions because sometimes I'm just not good at giving directions." M2: 107-109 "How I say things. Like to be a little more like content focused. I

			try to explain it in a kid way but I realize I need to sometimes try to make sure I say the content language…"
	Awareness of surrounding	Increase or decrease	KA: 131-136 "It also made me aware when I am teaching that I need to try to make sure I am looking constantly scanning everybody because uh you don't know what they are doing all the time if you are just looking in one general area. I have notice that not all the students are always paying attention too. I've learned to start using as system that I have seen other teachers use on Teaching Channel. Like thumbs up now and the middle to see how they are feeling about the subject and sometimes that is really helpful." R2: 57-59 "So I'm just really keeping an eye on the whole room now and not just concentrating so hard on you know did I meet my time goal? "
	Lesson Pacing	More on pace than off pace	S2: 70-76 "Um one thing is pacing of the lessons. Um coming from a background in early childhood I'm used to having the pacing rely more on the students whereas in Elementary the pacing needs to be more specific, more um guided and it was a little bit faster. St that's one thing I struggled with as well and was able to watch back at my videos and this part was a little slow and the kids weren't as engaged versus you know okay now I'm starting to get the pacing, we're moving along at a good speed where the kids are understanding but we're also not moving too slow." R1: 130

			"I have started to use a timer when I teach since I noticed kids losing focus when I ramble on." KA2: 49-59 "So one of the things while looking at video is time management. I also talked with classroom teacher I'm working with, getting suggestions from her. And we've been working on that and so we kind of figured out it's still best to keep the materials but for instance we use dry erase sleeves a lot in math and um similar to white boards and to just hand one stack to each line on the carpet and let them pass down." K1: 138-140 "And I also think that I guess like more organized. Things seem more organized now. Like before you were reading from a script and as you progress it's just more you doing it because you know how to do it not because you are doing A, B and C."
	Voice Level	Softer to Louder	D1: 153-156 "Um the level of my voice…I know from watching video I have toned it back a little on the volume." K1: 114-115 "I noticed in the beginning that I needed to be louder so I have progressed I have gotten louder…"

Category 4: Video Taping Process

Subcategory	**Property**	**Dimension**	**Data Example**
Problems with Technology	Uploading Speed	Fast to slow	DW1: 104-105 "In All Honesty it can take hours to upload things…" M1: 118-119 "And it's also it's just been hard to get the videos to upload onto Teaching Channel" J2: 140

			"Uploading to the Teaching Channel is a pretty good teaching process." KA1: 71-75 " As for loading to the Teaching Channel I have noticed , sometimes you have to submit a couple different times because the website has errors…"
	Set up	Many problems to few problems	KA1: 70-71 "Okay um with the video recording I can tell you it's never a problem with videotaping itself" SK1: 74-75 " …it is kind of hard because yeah the iPad they issued us doesn't always stand up, you have to like situate it with a book and it's hard to video tape it. DW2: 28-32 " ...I work in two or three rooms on a regular basis and the way they are structured I have to do some maneuvering to be able to just even set up like an iPad out to record without having to bother a student. SK2: 65-67 "…I guess the main issue is finding someone to do it for you. Cause it was an iPad. If it had a stand and was more easy to set up and use I guess I would have used it more."
Impact on Behavior	Student Behavior	Intrusive to un-intrusive	KW1: 76-77 "oh, not really this year. Last year it was a little more because I was place in first grade…" DW2: 31-32 "…without having to bother a student. Alright I need you to not take notes today so you can hold this up." DW2: 71-73 " You know in one of the recordings I had a kid lean over and hew was trying to check with the girl next to him and I think she

			reminded him they were being recorded because you can see him turn around and wave at the camera and then go back to his business." L1: 45 "The kids do not get up, they didn't pay attention at all to the video tape.
	Teacher behavior authenticity	High to low	DW2: 176-177 "You know I don't change everything I do in a classroom but I don't necessarily think the recording is getting the whole authentic me." D1: 116-117 "…so I knew the lesson that I was teaching a couple days before and I rehearsed it and rehearsed it some more." S1: 60-62 "Um I feel like it's different when you know that you are being videotaped because you know that might change the way you are teaching because you want to get it right for the video."
Frequency of video-taping		High to low	DW1: 88 "Honestly, just the two for the Inquiry into My Practice for prac 1. I haven't done any recordings yet this semester." R2: 40 "I would say not as much as I hoped for but I would say four or five yeah." KW1: 68 "Six with practicum 1." L2: 177 "I wish I would have recorded more." D1: 74 "Thus far, I've only used it once to be honest."
Level of Comfort		Comfortable to uncomfortable	KA1: 60-61 "Ok so originally I was just nervous cause I was like okay this is going

			to be interesting being videotaped…" K1: 63 "Um it's usually very scary. I feel like I am on edge the whole time. I don't know that extra camera lens, it's just I get a little scared…" DW1: 80 "Um I mean I am mostly comfortable with it." B1: 64 "I actually enjoyed it." D1: 87 "I'm not a tech person either."
Level of Experience		High to low	SK1: 76-77 "I video-taped for prac one a few times and it was okay." SK1: 131 "I guess I haven't did a lot of it to be honest. I've done more now." D1: 87 "I am not a tech person."

Appendix I: Inquiry into My Practice (IMP)

How the IMP works

The Prebrief in more detail

Tips for being a successful **IMPer**

a) Prepare for the lesson by looking over the questions your Thinking Partner will ask. Imagine how you will respond, and you may even make some notes.
b) When your Thinking Partner asks you questions, respond to them verbally, and don't just read your notes. The point of having a thinking partner is for you to speak into life what you have thought about, not to read a pre-pared script

Tips for being a successful Thinking Partner who supports powerful learning

Your goal is to help make the IMPer's thinking visible to him/her and any participants. This is essentially a relational and language focus. The most powerful way to do that is by:

a) **Make eye contact with your partner and smile at them**. They are about to teach in front oftheir peers, and your presence and support can make this a powerful experience. The way you listen matters, although you need some notes, what you say matters more than writing down each word. If you cannot remember what the IMPer says, ask them to repeat it. It's OK. This is not about 'perfection', it's about professionals communicating together about their practice.

b) **Ask the exact questions as stated below.** Language matters: Do not try to change up the wording, add your own, or substitute words.

c) **Paraphrasing what the IMPer actually says**, not what YOU might do/say if you were about to teach this lesson. Listen: This is not a coaching session or an opportunity for you to be an expert, or "look smart"

d) **You may ask simple clarifying questions, but this is not an interview**. Stay with the IMPer's agenda, and that means keeping pretty close to their language and not over interpreting. The IMPer will learn much by hearing what they have said reflected back to them; however, if you are not clear, they may not be quite clear, so asking, "tell me more about "could you say more about "could you clarify ...."What are the three questions that the Thinking Partners draw on for the Pre-brief and Debrief?

Q.1 What do you want to EXPLORE? In terms of content? And pedagogy?

Purpose: This questions is designed to invite the IMPer to consider the big content ideas of the lesson, and name the main idea they are building the lesson upon.

Some teachers will be able to talk in detail about their content, novices may just say a few words, but try not to make this a mere repetition of a curricular standard (although this may be referred to). This is meant to be a real conversation.

The question about pedagogy is separated out, to help emphasize that both aspects of teaching need to be attended to, content and pedagogy, and connections drawn between them. For many teachers, this is a hard question.

Q.2 How do you ENVISION the lesson unfolding? What will you do at the beginning, in the middle, and at the end?

Purpose: This question speaks to the plan for the sequence of experiences in the lessons. Thinking this out loud for all the parts of the lesson helps us to see how one part is connected on another part, either foreshadowing what is to come, or building upon what has already happened.

Some teachers may be able to break out what they will be doing from what their students will be doing at each phase, and then also link these experiences through time across the lesson.

Q.3 When the lesson is ENACTED, what do you want your learners to walk away knowing and thinking, and how will you know they know it?

Purpose: This question, asked after the parts of the lesson have been described, really asks the IMPer to think about the larger purpose and significance of what they are doing. This is after they have heard themselves talk about the lesson's details. When this big idea or purpose is named and made visible, the IMPer then can consider if the parts names earlier will achieve this.

The Debrief in more detail

The purpose of the debrief is to provide the IMPer with the language and thinking that they had as they prepared to enact the lesson.

Tips for being a successful Thinking Partner during the Debrief

a) The IMPer has just taught a lesson in front of their peers, so remember that you are providing a safe space for them to tell you what is on their mind. Your role is to support and help them make their thinking visible, not to praise or rescue them.
b) Consult your notes - share back with them what they said, not your evaluation of the lesson.
c) Revisit their answers to the questions you asked in the Pre-brief.

Q. 1 In your Prebrief you said you want to EXPLORE this CONTENT and this PEDAGOGY (……..), Having enacted the lesson, do you think that is what you EXPLORED?

(*wait for a response*)

Q.2 In your Prebrief you said you ENVISIONED the lesson unfolding with the beginning( ) and the middle (……) and the end ( ) Did the lesson unfold as you ENVISIONED?

(*wait for a response*)

Q.3 In your Prebrief you said when the lesson was ENACTED, you wanted learners to walk away (……). Do you think that is what they did walk away with?

(*wait for a response)*